

DEQ Permit by Rule Application

Proposed 20 MW Solar Power Generation Facility

Cherrydale Solar Farm

Cape Charles, Northampton County, Virginia

May 25, 2016



Prepared For:



Prepared By:





EXECUTIVE SUMMARY

Electricity generation accounts for 31 percent of total U.S. greenhouse gas emissions, according to the Environmental Protection Agency (EPA). To reduce these emissions, the electricity generation industry must decrease its reliance on fossil fuels. One way of decreasing fossil fuel dependence is by switching to renewable energy sources, such as biomass, geothermal heat, sunlight, water, and wind. Solar energy is one of the cleanest and most abundant renewable energy sources available.

Virginia has a goal to increase the state's use of renewable energy to 15% by 2025. To aid in the achievement of this goal, Virginia has enacted a voluntary Renewable Energy Portfolio Standard (RPS) program. RPS is a legislative mechanism developed on a state-by-state basis to require that a particular percentage of energy provided to consumers come from renewable energy resources. Legislation encourages investor-owned utilities to procure a percentage of the power sold in Virginia from eligible renewable energy sources. Each investor-owned electric utility must report to the Virginia State Corporation Commission (SCC) annually on its efforts to meet the RPS goals, its overall generation of renewable energy, and any advances in renewable generation technology.

To aid in the energy goals of the State of Virginia and its investor-owned utility providers, Hecate Energy, LLC (Hecate) has proposed a new renewable energy project in the state of Virginia to generate power for Old Dominion Electric Cooperative (ODEC) and A & N Electric Cooperative (ANEC). The project consists of a 20-megawatt (MW) solar farm on an approximate 185-acre tract of agricultural and wooded land located southwest of the intersection of Cherrydale Drive and Seaside Road in Cape Charles, Northampton County, Virginia (Northampton Tax Parcel No. 59-A-2). The proposed project will provide sufficient electrical services for ODEC/ANEC to power approximately 3,280 residential dwellings (approximately 164 homes per megawatt of installed capacity).

In 2009, the Virginia Department of Environmental Quality (DEQ) was instructed by the Virginia General Assembly to develop permit by rule (PBR) regulations to implement Virginia's Small Renewable Energy Projects legislation (VA Code 10.1-1197.6). The statute assigned jurisdiction to DEQ over protection of natural resources (specifically wildlife and historic resources) with respect to renewable energy projects. Pursuant to the statute, DEQ has authority to approve PBR applications for solar projects with a rated capacity of 100 megawatts or less. DEQ's regulations are set forth in 9 VAC 15-60 of the Virginia Administrative Code, and require each applicant submit a 14-part application that the required conditions for permit approval. This report and attachments comprise the DEQ PBR application prepared by Hecate Energy, LLC for the proposed 20 MW Cherrydale solar Farm.

Based on the natural resource analysis conducted as part of the PBR process, significant benefit to Virginia's natural resources are anticipated as a result of this project through the generation of clean energy, reduction of agricultural runoff, reduction of storm water and sediment runoff, enhanced soil structure and organic content, and the re-introduction of native plant species to the area, which will result in an increase of habitat for both native and migratory wildlife.

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1. Notice of Intent
2. Compliance with Local Land Use Ordinances
3. Interconnection Studies
4. Interconnection Agreements
5. Maximum Generation Capacity Certification
6. Analysis of Potential Impact on Air Quality Standards
7. Analysis of Potential Beneficial/Adverse Impacts on Natural Resources
8. Mitigation Plan
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10. Operation Plan Incorporating Mitigation Plan
11. Site Plan & Context Map
12. Certification of Application for Environmental Permits
13. Public Review
14. Permit Fee



1.0 INTRODUCTION

1.1 DEQ Permit by Rule

In 2009, the Virginia Department of Environmental Quality (DEQ) was instructed by the Virginia General Assembly to develop permit by rule (PBR) regulations to implement Virginia's Small Renewable Energy Projects legislation (VA Code 10.1-1197.6). The statute assigned jurisdiction to DEQ over protection of natural resources (specifically wildlife and historic resources) with respect to renewable energy projects. Pursuant to the statute, DEQ has authority to approve PBR applications for solar projects with a rated capacity of 100 megawatts or less. DEQ's regulations are set forth in 9 VAC 15-60 of the Virginia Administrative Code, and require each applicant submit a 14-part application that the required conditions for permit approval. This report and attachments comprise the DEQ PBR application prepared by Hecate Energy, LLC for the proposed 20 MW Cherrydale solar Farm.

1.2 Location and Description of Project Area

The project area consists of an approximate 185-acre tract of agricultural and wooded land located southwest of the intersection of Cherrydale Drive and Seaside Road in Cape Charles, Northampton County, Virginia (Northampton Tax Parcel No. 59-A-2). A general location map is provided as Exhibit 1 (Appendix A). The central portion of the site contains active crop fields (corn on the western quadrant and potato fields on the eastern quadrant). The northeast and southwest corners of the site consist of wooded land, and the south central portion of the site consists of wooded land containing a small cemetery as well as a wetland, freshwater pond, and segment of a stream. The site has historically consisted of agricultural land and sparse residential land since at least 1952. An electrical transmission line bisects the site extending north-south. No additional improvements are currently located on the site. The project site is relatively level, with an approximate elevation of 35-feet above mean sea level (AMSL). Drainage is generally directed toward the water features on the southern portion of the site.

Adjoining properties to the site include wooded land, agricultural fields, and single-family residential development. An abandoned commercial-agricultural facility is located adjacent to the west of the site. The surrounding region is generally characterized by rural agricultural fields and wooded land with moderate to sparse single-family residential and commercial development. The site is situated on the Virginia Eastern Shore peninsula, located approximately one mile west of the Atlantic coast and four miles east of the Chesapeake Bay. A (United States Geologic Survey (USGS) Topographic Map and an aerial photograph of the project area are provided as Exhibits 1 and 2.

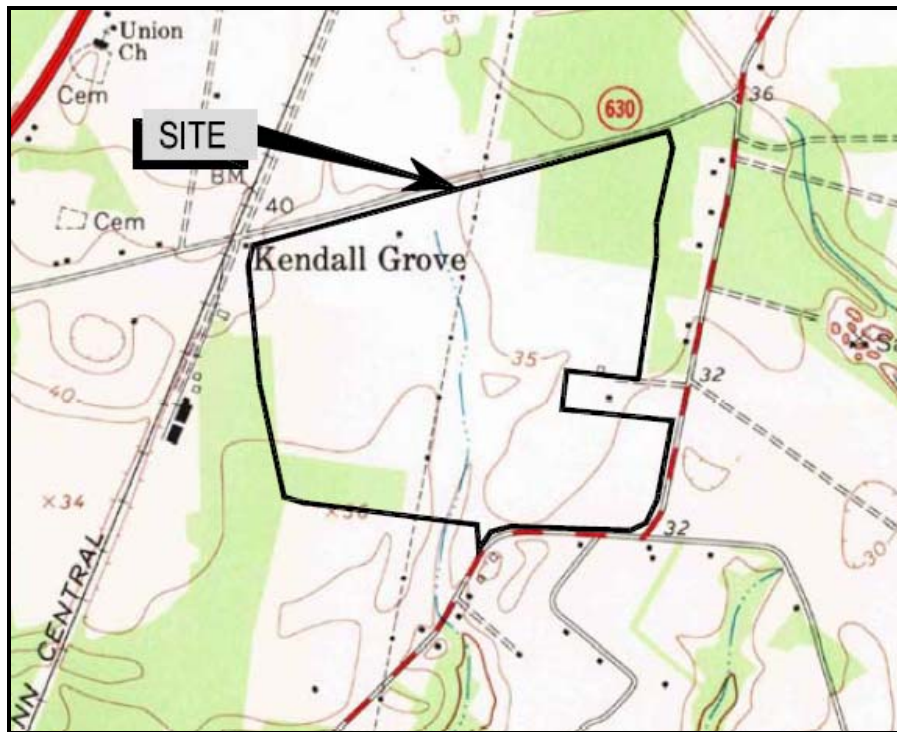


Exhibit 1 – USGS Topographic Map of the Project Site



Exhibit 2 – Aerial Photograph of the Project Site

1.3 Project Description

The project is the development of the site with a 20 megawatt (MW) solar farm capable of providing power to several thousand homes. The solar farm will be outfitted with high-efficiency, top-tier multicrystalline photovoltaic (PV) modules (300-watts or greater). The PV modules will be mounted to durable aluminum frames and attached to a fixed position racking and tracking system. The tracker utilizes a wide degree of rotation to maximize energy output with efficient use of available sunlight for electricity production.

The majority of the 185-acre site will be developed with solar panels, with the exception of a 60-foot vegetative buffer surrounding proposed facility; a buffered area on the south central portion of the site containing the water features and cemetery; and the power line easement bisecting the site. A small driveway apron will be developed on the northern central portion of the site to provide access from Cherrydale Drive, and an equipment compound will be outfitted on the central portion of the site within the existing power line easement. Project components include PV modules sufficient to produce 20 MW of electricity, associated support structures, electrical inverters and transformers, buried electrical conduit, access apron, security fencing, and related transmission structures. The proposed solar facility would interconnect with the Old Dominion Electric Cooperative (ODEC) and A & N Electric Cooperative (ANEC) system as a tap of the Bayview-Kellam 69 kV Circuit. The proposed project will provide sufficient electrical services for ODEC/ANEC to power approximately 3,280 residential dwellings (approximately 164 homes per megawatt of installed capacity).

The foundation for the tracking system utilizes multiple posts per row. Posts will be driven into the ground according to the spacing and engineering specifications. The support columns are the stationary element of the rack frame work and are considered the rack foundation. The installation of tracking system columns for the project will be performed via a Vibratory Pile Driver Support Column Installation process. Once the tracking system and MV cabling has been completed, the installation of modules will begin. Panel installation methodology will be determined upon final design and acceptance of module clamping system.

Each initial PV module would be approximately 3.25 feet by 6.4 feet; however, as technology changes, module sizes may vary. All modules would be oriented in rows running from north to south and angled at a degree that would maximize solar resource efficiency. The PV solar modules would be mounted in landscape orientation on direct-driven, single-axis tracker steel support structures that will rotate approximately +/- 60-degrees east-west to track the sun as it moves through the sky each day. The center height of the tracker structures will be approximately 4-6 feet in height above the ground. When the modules are tilted at their maximum angle, the highest point of each module would be approximately 7-8 feet in height above the ground. The support structures/piles would be constructed of corrosion-resistant steel driven into the ground approximately 10-12 feet in depth. Module faces would be non-reflective to eliminate glare and black or blue in color. Concrete or steel foundations

approximately 31 feet x 8 feet x 2 feet would be required for inverter mounts which will also include the associated transformer and switchgear associated with each of the approximately 10-12 inverter stations. Transformer mounts for the one central transformer and switchgear will be approximately the same size and be made of concrete.

All Project facilities would be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations, and standards. The project is anticipated to take approximately four months to complete, upon the commencement of construction. All construction lay down areas would be located within the boundaries of the site footprint, outside of designated buffer zones. Proposed project development plans are illustrated below on Exhibit 3.



Exhibit 3 – Proposed Project Development Plans



1.4 About Hecate Energy, LLC

Hecate Energy, LLC (Hecate) is a leading developer, owner, and operator of solar, natural gas, wind, and energy-storage projects. Their global presence drives best-in-class processes, technical designs, and financing structures across countries--and continents. Hecate delivers power projects - from planning and inception through construction and continuing operations. They specialize in solar and wind power, natural gas plants and energy storage. They unearth creative approaches to structuring PPAs and financing power projects both in the United States and abroad.

Hecate believes in collaborative, long-term, partnerships with the communities, organizations and countries they serve. They have deep expertise in thermal and renewable power generation, including: coal-fired, gas-fired, hydro, solar, and wind powered generation. Currently, we're especially focused upon power projects employing solar, wind, natural gas, and storage technologies. They partner with communities and countries at the earliest stages of setting policy, planning, and zoning.

Hecate develops projects in countries around the world. They take a collaborative approach to understanding both the near term needs and long term goals of the locations where they develop power projects. Hecate is currently developing projects in the United States, Jordan, and Africa. For addition information regarding Hecate, please visit the website at <http://www.hecateenergy.com/>.

1.5 Site Selection and Evaluation Process

Virginia's Eastern Shore provides strong solar energy/insolation, allowing such types of renewable energy project to generate more energy during daylight hours compared to other parts of the state with less favorable insolation resource. The location also poses a unique and sensitive location, with numerous considerations that were evaluated prior to site selection. These considerations included availability for development, avoidance of environmentally sensitive areas, potential for interconnection, and site conditions favorable for the development of a solar farm.

The project site was selected due to numerous desirable aspects, including:

- Flat level terrain and lack of significant vegetation on the majority of the area;
- Bisection of the project site by a 69kV sub-transmission line, which provides an ideal point of interconnection for the delivery of the output from the solar project;
- The project area has previously been disturbed through agricultural activities, and the majority of the project would not impact pristine land;
- Access to major roadways;
- Size, configuration, land use, and topography;
- Ability to accommodate sufficient PV modules to produce 20 MW;
- No structures to be demolished;
- Attainable compliance with applicable laws and development permits;
- Availability for lease / development; and
- Reasonable land and development costs.

Numerous sites in the Eastern Shore were considered in the site selection process. None of the other sites considered provided close proximity to a 69kV line, which is a necessity for interconnection of the solar project. Additionally, not all landowners having similar properties in proximity to the 69kV line had an interest in making their property available for sale or lease to a solar project that would commit the land for a period of 25 years or more. The particular site chosen for this project had an agreeable landowner who was in favor of making the property obtainable for lease for a solar project. This availability of the property coupled with numerous favorable site characteristics ultimately led to the selection of the site.



2.0 DEQ PERMIT BY RULE COMPLIANCE ANALYSIS

2.1 Application Components

The DEQ PBR process establishes fourteen (14) requirements that must be addressed to comply with, and obtain, the PBR. This document and its attachments comprise the Cherrydale Solar Farm application for PBR approval. This application is structured to first provide the specific PBR requirements, then provide an analysis for project compliance with each component. Supporting documentation and application components are appended. The fourteen (14) requirements of the PBR are summarized as follows, and addressed in the following pages:

1. Notice of Intent
2. Compliance with Local Land Use Ordinances
3. Interconnection Studies
4. Interconnection Agreements
5. Maximum Generation Capacity Certification
6. Analysis of Potential Impact on Air Quality Standards
7. Analysis of Potential Beneficial/Adverse Impacts on Natural Resources
8. Mitigation Plan
9. Certification of Design Incorporating Mitigation Plan
10. Operation Plan Incorporating Mitigation Plan
11. Site Plan & Context Map
12. Certification of Application for Environmental Permits
13. Public Review
14. Permit Fee

Within the following subsections of Section II (Permit by Rule Compliance Analysis) any italicized text is copied directly from the Virginia Administrative Code related to the Solar PBR.



2.1.1 Requirement One: Notice of Intent

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 1 of the Code of Virginia, and as early in the project development process as practicable, furnishes to the department a notice of intent, to be published in the Virginia Register, that he intends to submit the necessary documentation for a permit by rule for a small renewable energy project.

Compliance Analysis:

A notice of intent was provided to the DEQ on October 12, 2015. Subsequent to the notice of intent letter, DEQ provided notice to the Virginia Register of Regulations and that notice was published in the Virginia Register of Regulations.

A copy of the notice of intent provided to the DEQ on October 12, 2015 is included as Application Attachment One. It should be noted that no inquiries were received in response to the notice publication.



2.1.2 Requirement Two: Compliance with Local Land Use Ordinances

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 2 of the Code of Virginia, furnishes to the department a certification by the governing body of the locality or localities wherein the small renewable energy project will be located that the project complies with all applicable land use ordinances;

Compliance Analysis:

In addition to the PBR, the proposed Cherrydale Solar Farm was required to obtain approvals from Northampton County, the local governing body with jurisdiction over the project location. The project has obtained compliance with the Northampton County Zoning Ordinance. Hecate obtained a Special Use Permits (SUP) for the proposed development. SUPs appear on the Northampton Zoning Ordinance schedule of uses in the zoning ordinance and are essentially compatible with other permitted uses in a zoning district, but possess characteristics or locational qualities which require individual review. The Northampton County Board of Supervisors approve SUPs following public hearings as required by Virginia law. The Northampton County Board of Supervisors voted to approve a SUP for Cherrydale by a positive 3-2 vote on March 8, 2016. The proposed project will adhere to the terms and stipulations of the approved SUP. A Local Governing Body Certification Form is provided as evidence of the compliance and is included as Application Attachment Two.



2.1.3 Requirement Three: Interconnection Studies

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 3 of the Code of Virginia, furnishes to the department copies of all interconnection studies undertaken by the regional transmission organization or transmission owner, or both, on behalf of the small renewable energy project

Compliance Analysis:

All interconnection studies are included within Application Attachment Three.



2.1.4 Requirement Four: Interconnection Agreements

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 4 of the Code of Virginia, furnishes to the department a copy of the final interconnection agreement [if any,] between the small renewable energy project and the regional transmission organization or transmission owner indicating that the connection of the small renewable energy project will not cause a reliability problem for the system. If the final agreement is not available, the most recent interconnection study shall be sufficient for the purposes of this section. When a final interconnection agreement is complete, it shall be provided to the department. The department shall forward a copy of the agreement or study to the State Corporation Commission;

Compliance Analysis:

The Interconnection Agreement is included within Application Attachment Four.



2.1.5 Requirement Five: Maximum Generation Capacity Certification

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 5 of the Code of Virginia, furnishes to the department a certification signed by a professional engineer licensed in Virginia that the maximum generation capacity of the small solar energy project, as designed, does not exceed 100 megawatts;

Compliance Analysis:

The project consists of a 20-megawatt (MW) solar farm on an approximate 185-acre tract of agricultural and wooded land located southwest of the intersection of Cherrydale Drive and Seaside Road in Cape Charles, Northampton County, Virginia (Northampton Tax Parcel No. 59-A-2). The project will not exceed 100 MW. A certification of compliance, signed by a professional engineer licensed in Virginia, is included as Application Attachment Five.



2.1.6 Requirement Six: Analysis of Potential Impact on Air Quality Standards

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 6 of the Code of Virginia, furnishes to the department an analysis of potential environmental impacts of the small renewable energy project's operations on attainment of national ambient air quality standards;

Compliance Analysis:

The proposed project will provide sufficient electrical services for ODEC/ANEC to power approximately 3,280 residential dwellings (approximately 164 homes per megawatt of installed capacity). Operation of the proposed renewable energy project will not be a detriment to attainment of national ambient air quality standards, as the operations will not have off-gassing or any burning as associated with traditional energy generation. Operation of the project will not have a negative effect on air quality, but rather the proposed project will provide an improvement on air quality. Operating a solar project over time and through the ODEC/ANEC grid will reduce the need to operate traditional energy generating facilities that do have a negative impact on air quality.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for air pollutants. The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone, suspended particulate matter less than or equal to 10 microns in diameter (PM₁₀), fine particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), and lead (Pb). CO, SO₂, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval.



Northampton County is classified by the USEPA as unclassified/attainment for all criteria pollutants. Although all areas in the county are in attainment, the project was reviewed for potential contribution to a potential reduction in NAAQS. No generators, boilers, or other equipment requiring an air permit are anticipated for the site. There would be no long-term air quality effects associated with routine operations of the solar farm.

Construction activities associated with the proposed project would generate particulate matter from soil disturbances and diesel-powered equipment. It is expected that minor amounts of carbon monoxide and precursor pollutants for ozone would be emitted by tailpipe emissions from construction equipment and vehicles. Any air pollutants would be widely dispersed across the project area and short-term in nature. Air pollutants would be minimized by dust suppression (watering) and vehicle maintenance.

Dust mitigation measures will be required during construction of the proposed solar farm. Measures may include watering of disturbed areas and sweeping or other methods to control tire track-out at intersections with construction and paved areas. Minor emissions from construction can be further reduced or mitigated through the use of BMPs. BMPs for dust control include spraying water on exposed surfaces to minimize dust, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize fugitive dust, using a soil stabilizer (chemical dust suppressor), mulching, using a temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks transporting soil, sand, or other loose material off-site. BMPs for construction vehicle and equipment emissions include limiting vehicle idling time, using low or ultra-low sulfur fuel (including biodiesel), conducting proper vehicle maintenance, and using electric-powered tools (instead of gas-powered tools). It is anticipated that construction contractors will properly maintain their fleet of vehicles/equipment so that air emissions are kept to a minimum over time.

Based on the above information, it is not anticipated that the project would have a negative impact on the small renewable energy project's operations on attainment of NAAQS.

2.1.7 Requirement Seven: Analysis of Potential Beneficial/Adverse Impacts on Natural Resources

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 7 of the Code of Virginia, furnishes to the department, where relevant, an analysis of the beneficial and adverse impacts of the proposed project on natural resources. The owner or operator shall perform the analyses prescribed in 9VAC15-60-40.

9VAC15-60-40. Analysis of the beneficial and adverse impacts on natural resources:

A. Analyses of wildlife. To fulfill the requirements of § 10.1-1197.6 B 7 of the Code of Virginia, the applicant shall conduct preconstruction wildlife analyses. The analyses of wildlife shall include the following:

- 1. Desktop surveys and maps. The applicant shall obtain a wildlife report and map generated from DGIF's Virginia Fish and Wildlife Information Service web-based application (9VAC15-60-120 C 3) or from a data and mapping system including the most recent data available from DGIF's subscriber-based Wildlife Environmental Review Map Service of the following: (i) known wildlife species and habitat features on the site or within two miles of the boundary of the site and (ii) known or potential sea turtle nesting beaches located within one-half mile of the disturbance zone.*
- 2. Desktop map for avian resources in Coastal Avian Protection Zones (CAPZ). The applicant shall consult the "Coastal Avian Protection Zones" map generated on the department's Coastal GEMS geospatial data system (9VAC15-60-120 C 1) and determine whether the proposed solar energy project site will be located in part or in whole within one or more CAPZ.*

B. Analyses of historic resources. To fulfill the requirements of § 10.1-1197.6 B 7 of the Code of Virginia, the applicant shall also conduct a preconstruction historic resources analysis. The analysis shall be conducted by a qualified professional meeting the professional qualification standards of the Secretary of the Interior's Standards for Archeology and Historic Preservation (9VAC15-60-120 B 2) in the appropriate discipline. The analysis shall include each of the following:

- 1. Compilation of known historic resources. The applicant shall gather information on known historic resources within the disturbance zone and within one-half mile of the disturbance zone boundary and present this information on the context map referenced in 9VAC15-60-70 B, or as an overlay to this context map, as well as in tabular format.*
- 2. Architectural survey. The applicant shall conduct a field survey of all architectural resources, including cultural landscapes, 50 years of age or older within the disturbance*

zone and within one-half mile of the disturbance zone boundary and evaluate the eligibility of any identified resource for listing in the VLR.

3. Archaeological survey. The applicant shall conduct an archaeological field survey of the disturbance zone and evaluate the eligibility of any identified archaeological site for listing in the VLR. As an alternative to performing this archaeological survey, the applicant may make a demonstration to the department that the project will utilize nonpenetrating footings technology and that any necessary grading of the site prior to construction does not have the potential to adversely impact any archaeological resource.

C. Analyses of other natural resources. To fulfill the requirements of § 10.1-1197.6 B 7 of the Code of Virginia, the applicant shall also conduct a preconstruction desktop survey of natural heritage resources within the disturbance zone.

D. Summary report. The applicant shall provide to the department a report presenting the findings of the studies and analyses conducted pursuant to subsections A, B, and C of this section, along with all data and supporting documents. The applicant shall assess and describe the expected beneficial and adverse impacts, if any, of the proposed project on wildlife and historic resources identified by these studies and analyses.

Compliance Analysis:

The above evaluation steps are briefly itemized below. In addition to the PBR-requested information, the client has reviewed and provided supplemental information that is incorporated into applicable analysis sections. Each of these steps are summarized in further detail in the following subsections.

- A. Analysis of wildlife.** Including: (1) Desktop surveys and maps, and (2) Desktop map for avian resources in Coastal Avian Protection Zones (CAPZ)
- B. Analysis of historic resources.** Including (1) Compilation of known historic resources, (2) Architectural survey, and (3) archeological survey; conducted by a *qualified professional*.
- C. Analysis of other natural resources.** Including: a preconstruction desktop survey of natural heritage resources within the disturbance zone.
- D. Summary report.** The application shall assess and describe the expected beneficial and adverse impacts, if any, of the proposed project on wildlife and historic resources identified by these studies and analyses. The summary shall include the findings of data and supporting documents of studies A, B, and C.

A. Analysis of Wildlife: Including: (1) Desktop surveys and maps, and (2) Desktop map for avian resources in Coastal Avian Protection Zones (CAPZ)

The Virginia Wildlife Environmental Review Map Service (WERMS) analysis depicts no threatened or endangered species of concern within or adjacent to the proposed Project area.

One species observation point is identified approximately 200 feet east of the site which is listed as the woodland box turtle (*Terrapene carolina*). The species can be found in upland wooded areas throughout the state of Virginia. The species is listed as a Tier III species in the Virginia Wildlife Action Plan (WAP). To account for the possible presence of the Box Turtle, Hecate will request the construction team to notify the client if the species is identified during site construction activities. As with most box turtles, the woodland box turtle is easily identifiable with its brown carapace and yellow splotches on the shell. The construction team will be provided with fliers illustrating the appearance of the woodland box turtle. Box turtles are most active in the morning hours and after a rain. An observation sweep of the wooded area will be recommended prior to tree clearing. If a turtle is identified on the site, Hecate will contact their qualified contractor to confirm the species and the individual will be relocated from the construction zone as not to be impacted.

A species observation of the black rail (*Laterallus jamaicensis*) is reported in two locations approximately 1.5 miles southeast of the site within a salt marsh. This species inhabits marshy areas within abundant vegetative cover and rarely flies inland. No adverse effect is expected based on the nature of this species and location in relation to the Project area.

The WERMS map also illustrates five bald eagles nests and two bald eagles roosts within the two mile site radius (white circles on the WERMS map). Four of these nests are reported as historical with only one reported active in the last five years. This nest is located approximately 1.8 miles west of the site in the vicinity of the two roost locations. Based on distance, construction and operations activities will have no impact on the bald eagle.

Further review of the WERMS map and species data generated through the Virginia Fish and Wildlife Information Service (VaFWIS) search engine did not indicate potential species or habitat that would be negatively impacted by the proposed Project. No potential sea turtle nesting beaches were identified within a one-half mile distance of the site, and the site location is greater than one-half mile from any beach or estuarine area. The WERMS map does not indicate hibernacula or roosting locations for the Northern long-eared bat on the site. Wooded land on the site does provide potential summer roosting habitat for the species; however, based on the Northern long-eared bat 4(d) rule, any planned tree removal will occur outside the months of June and July to avoid impacts to the bat during roosting season. This approach has been confirmed by both the United States Fish and Wildlife Service and Virginia Department of Games and Inland Fisheries.

Legend

- Approximate Site Boundary
- 2 Mile Radius
- NLEB_Roost_Trees
- NLEB_Roost_Trees_LowRes
- Hibernacula_05
- Hibernacula_55
- SppObs_Enviro_Review_Listed
- SppObs_Tiered_Non_Listed
- SppObs_Not_Observed



Notes

Data Source:
Virginia Department of Game and Inland Fisheries -
Wildlife Environmental Review Map Service (WERMS),
updated 4/15/2016



Project No.	XXXXXXX
Drawn By:	MDP
Approved By:	JWB
Date:	5/23/2016

Terracon
Consulting Engineers & Scientists

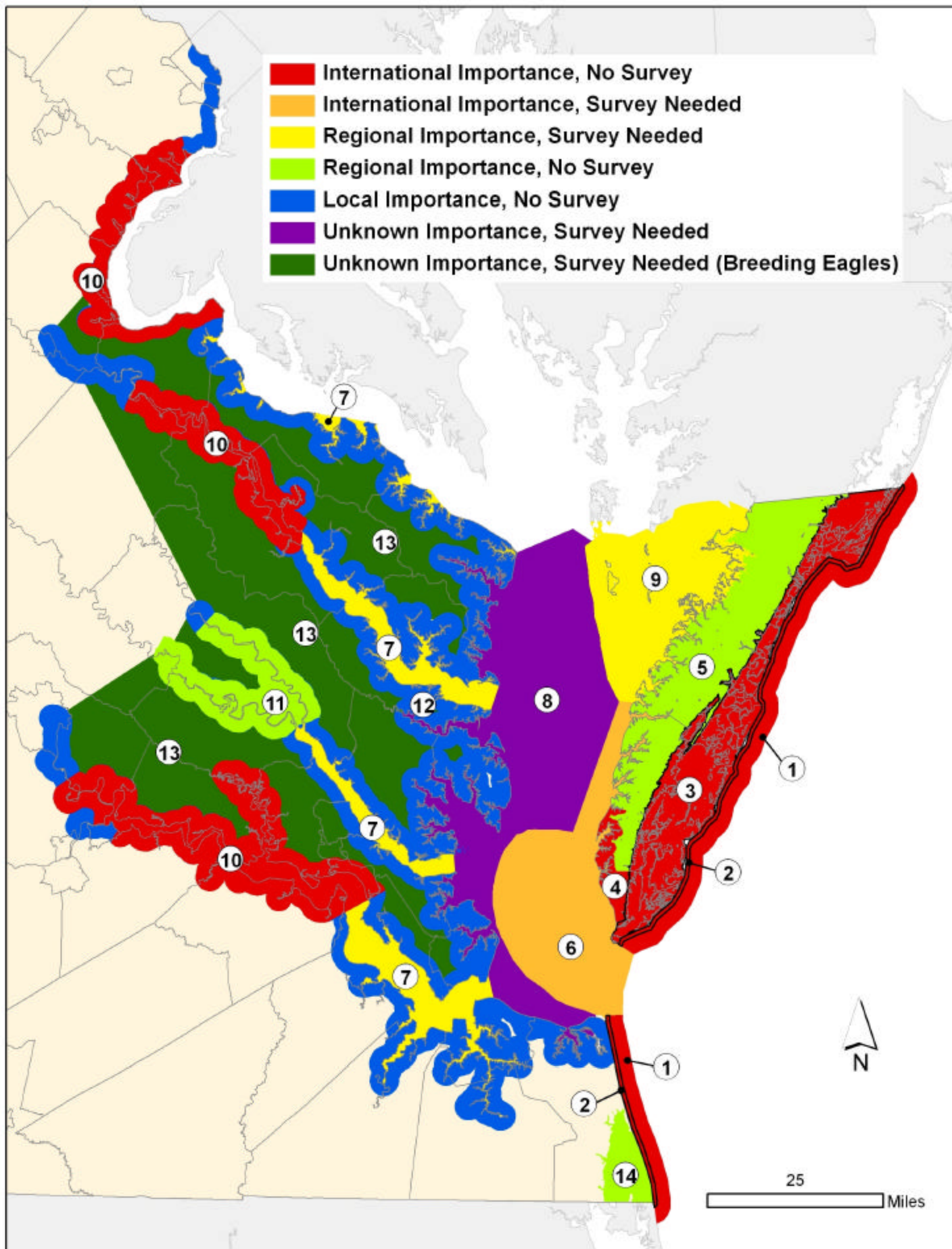
2855 Premier Parkway, Suite C Duluth, GA 30097
PH: (770) 623-0755 FAX: (770) 623-9628

WERMS Radius Map

Hecate Energy
Cherrydale
Cape Charles, Northampton County, Virginia

Exhibit

X





The Coastal Avian Protection Zone (CAPZ) map analysis illustrates the Project within “Zone 5 – Regional Importance, No Survey”. Conditions of the PBR require a contribution to a state fund for related research as the appropriate mitigation for any potential impact. CAPZ Zone 5 requires a \$1,000 per Megawatt contribution; therefore, total contribution for the Project will be \$20,000. The project is not expected to have a negative impact on avian species due the nature of the development and siting of the Project. Panels associated with solar projects are generally no higher than ten feet above-ground surface and will not impact bird flight or migration pathways.

Summary:

The requirements and conditions of the PBR have been fulfilled in regards to species and habitat review. The WERMS analysis identified no species or habitat within the Project area and no negative impact is expected to species within a minimum 2 mile radius of the site. Based on the nature and location of the Project, no adverse effect to avian species is expected and mitigation conditions of the PBR will be accomplished by a state fund contribution in accordance with CAPZ Zone 5.

- B. Analysis of historic resources:** Including (1) Compilation of known historic resources, (2) Architectural survey, and (3) archeological survey; conducted by a *qualified professional*.

Terracon Consultants, Inc. (Terracon) completed a Cultural Resource Reconnaissance Survey (CRRS) of the proposed project site in August of 2015 (updated April of 2016). The CRRS was completed to identify any historic properties within the project area or within a 0.50-mile radius of the area of potential affect (APE), including current inventories of the National Register of Historic Places (NRHP) and Virginia Cultural Resource Information System (V-CRIS) data available through the Virginia Department of Historic Resources (VDHR). A map of previously recorded cultural resources identified through this research is provided in Exhibit 10.

Based on the results of the background research, there are three previously recorded archaeological sites and one historic resource within a 0.5-mile radius of the project area (see Table below). The three archaeological sites — 44NH241, 44NH242, and 44NH243 — are all nineteenth century house sites. The historic resource, known as the Elizabeth Burrows House (065-0420), is an early twentieth century house and cemetery. None of these resources are within the project area, and none have been evaluated for inclusion in the NRHP.

Table: Previously Recorded Cultural Resources within a 0.5-mile Radius of the Project Area

Resource ID	NRHP Eligibility Reference
44NH241	19th century tenant house site Not Evaluated V-CRIS
44NH242	19th century house site Not Evaluated V-CRIS
44NH243	19th century house site Not Evaluated V-CRIS
065-0420	Elizabeth Burrows House, early 20th century Not Evaluated V-CRIS house and cemetery

In addition to reviewing V-CRIS records, eighteenth through twentieth century maps were examined to determine whether any historic resources were likely to be present in the proposed project area. During the eighteenth century, the proposed project area was located in a rural setting. The 1778 Map of Northampton County shows the site as undeveloped. A 1932 highway map of Virginia shows the current rail line to the northwest border of the proposed project and the establishment of the Kendall Grove community in the area. Twentieth century topographic maps show scattered residential development in the area including three houses on the south side of Cherrydale Drive within the project area. These three houses were determined to be no longer extant.

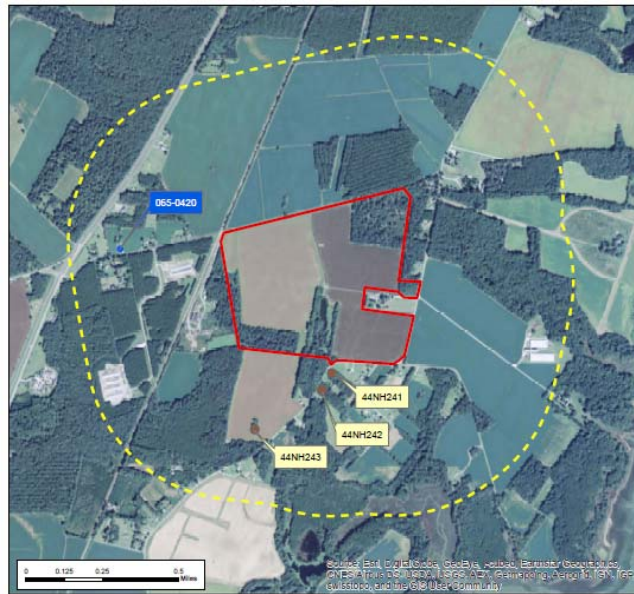


Exhibit – Map of Previously Recorded Cultural Resources within ½ Mile

According to the CRRS, the Southeastern and Mid-Atlantic U.S., various predictive models have been used to identify areas having a high likelihood for containing archaeological sites. In general, the most significant variables for determining site location appear to be distance to a permanent water source or wetland, slope, and soil drainage characteristics. Prehistoric sites tend to occur on low slope areas with well drained soils that are within 300 meters of a permanent water source or wetland, or near areas containing high quality lithic resources. Historic home sites tend to be located on well drained soils near old roads. Low probability areas are those that contain poorly drained soils or have slopes in excess of 15 percent. Based on these parameters, the entire project area had a moderate potential for containing prehistoric archaeological sites due to the presence of well-drained soils and gentle slope, but lack of a nearby permanent water source. The project area had a high potential for containing twentieth century archaeological sites due to the proximity of several roads as well as evidence from the map research that indicated three twentieth homes were located on the property.

As part of the CRRS, Principal Investigator William Green, M.A., RPA, conducted a reconnaissance level survey of the project area. The archaeological survey consisted of excavating shovel test pits (STPs) at 30- and 60-meter intervals along four transects (see Table on following page). Each shovel test was approximately 40 cm in diameter and excavated to culturally sterile subsoil. A pedestrian survey was conducted along all dirt roads, in the potato fields, which had about 90 percent surface visibility, and in portions of the cornfield, which had approximately 40–70 percent surface visibility. Although three twentieth century house site are presumed to be in the project area based on historic map research, no attempt was made to field identify these sites as they are unlikely to be considered significant resources (i.e., historic properties).

During the survey, 37 shovel tests, ranging from 25–60 cm deep, were excavated. Soil profiles in the agricultural fields were relatively consistent, with approximately 22 cm of dark yellowish brown (10YR 3/4) sandy loam (Ap horizon), overlying 18+ cm (22–40 cmbs [centimeters below surface]) reddish yellow (7.5YR 6/6) sandy clay loam subsoil (Bt horizon). In the woods, soil profiles tended to consist of approximately 8 cm of dark yellowish brown (10YR 3/4) sandy loam (A/O horizon), followed by 32 cm (8–40 cmbs) of yellowish brown (10RY 5/6) loamy fine sand (A horizon), overlying 10+ cm (40–50+ cmbs) of strong brown sandy clay loam subsoil (Bt horizon). As a result of the survey, no archaeological sites or isolated finds were recorded.

Table: Shovel Test Transects and Results

Transects	STP	Interval	Bearing	Area	Results
Transect 1	12	60-M	Varied	Potato field along east side of drainage	No sites or isolated finds
Transect 2	11	60-M	0°	Potato field in east half of project area	No sites or isolated finds
Transect 3	8	30-M	180°	Wooded area in NE corner	No sites or isolated finds
Transect 4	6	60-M	190°	Cornfield on west side of drainage	No sites or isolated finds

In addition to the archaeological survey, an architectural survey was conducted to locate and record buildings, structures, and objects 50 years of age or older within the APE. Terracon consulted the guidelines published by the VDHR to establish the APE for the project's indirect effects. The APE was determined to be the project site and properties within the viewshed of the proposed project.

Table: Summary of Structures in the APE

Figure	Resource ID	Address	Date of Construction (Tax Assessor)	Brief Description of Current Condition	Eligibility
12-17	065-5036	15446 Seaside Road	1870	I-house with two-story rear gable ell, asbestos siding, partially enclosed hipped roof porch, 6/6 double hung windows. Historic outbuildings include shed, smokehouse and three corn cribs.	Not Eligible
18	065-0420	6259 Cherrydale Drive	1916	Early 20 th century house and cemetery. Two-story vernacular house on brick pier foundation with vinyl siding, vinyl windows, replacement porch balustrade and asphalt roof.	Not Eligible
19	065-5037	6305 Cherrydale Drive	1754	Two-story side-hall vernacular house on continuous brick foundation with vinyl siding, 1/1 vinyl windows, and one story rear gable addition	Not Eligible
20	065-5038	6321 Cherrydale Drive	N/A	C. 1950 one-story side gable house with vinyl siding, vinyl windows, enclosed portico, cinderblock pier foundation, and poured concrete stoop.	Not Eligible
21	065-5039	6355 Cherrydale Drive	1960	One-story hipped roof house with asymmetrical façade, brick chimney, and weatherboard siding. Deteriorating condition with windows covered in plywood and falling and missing siding.	Not Eligible

Figure	Resource ID	Address	Date of Construction (Tax Assessor)	Brief Description of Current Condition	Eligibility Assessment
22	065-5040	6385 Cherrydale Drive	1947	Mid-20 th century side gable house with metal frame windows, vinyl siding, and asphalt roof.	Not Eligible
23	065-5041	15189 Seaside Road	N/A	19 th century house with Colonial Revival elements with asymmetrical façade, vinyl siding vinyl windows, fixed shutters, portico, and gable additions on each side.	Not Eligible
24	065-5042	15268 Seaside Road	1900	Turn-of-the -century Queen Anne house with 2/2 windows, brick chimney, and concrete block foundation.	Not Eligible
25	065-5043	15336 Seaside Road	1754	Two-story gabled-ell house with replacement siding, vinyl windows, asphalt roof, and rear shed addition. No observable construction period due to alterations.	Not Eligible
26	065-5044	7232 Indian Village Road	1925	Two story side-hall house with vinyl siding, vinyl windows, fixed shutters, asphalt roof, and large rear addition. No observable construction period due to alterations.	Not Eligible
27	065-5045	16085 Seaside Road	1942	Two-story side gabled house with vinyl siding, vinyl windows, fixed shutters, asphalt roof, and hipped roof front porch.	Not Eligible

Eleven properties, all single-family dwellings, were recorded within the proposed APE including one previously recorded property (065-0420). None of the properties were determined to be eligible for the NRHP based on an evaluation by Terracon's qualified Architectural Historian. The houses ranged from 18th thru mid-20th century based on tax assessor data and historic map research. Many of the 18th century properties had substantial material alterations and lacked defining architectural style and therefore had no definitive observable construction period. Exhibit 11 depicts the locations of the eleven properties surveyed.

On the project parcel a circa 1870 house and multiple historic outbuildings including a smokehouse, shed, and three corn cribs were recorded (065-5036). These structures will not be directly impacted by the project. The house is a two-and-half-story I-house with a front cross gable and a two-story rear gable ell. The house sits on a continuous brick foundation and features a hipped roof front porch with Tuscan columns and 6/6 single hung wood frame windows. Alterations include asbestos siding, a shed roof addition on the gable ell, vinyl enclosures on the ends of the front porch and an apparent conversion to a multi-tenant dwelling. While the property is a reflection of late 19th century vernacular architecture it has undergone material changes and does not exhibit architectural distinction. The property does not appear to be associated with a significant event or persons. Therefore, it is Terracon's opinion that this property does not appear to be eligible for the NRHP.

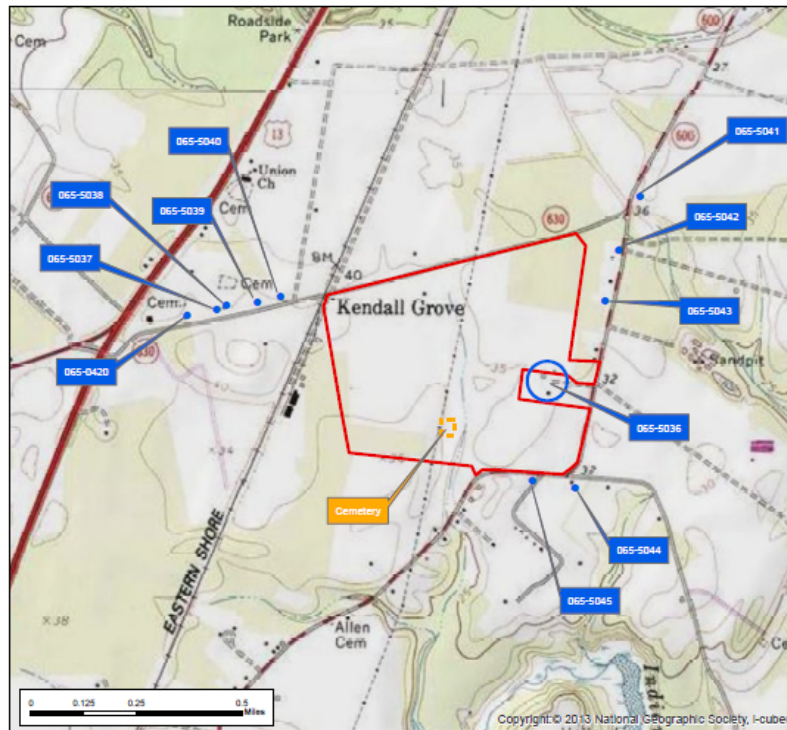


Exhibit – Map of Surveyed Structures and Cemetery

On December 29, 2015, subsequent to the cultural resources investigation, a cemetery was identified on the south central portion of the site, located in the vicinity of the delineated wetland. The cemetery is mentioned in a deed dated December 21, 1906, that transferred the land from William and Mary Waddey to Hezekiah and Ira James. The deed states “it is expressly agreed and understood ... that the grave-yard forty feet by forty feet (40ft. / 40ft.) on said premises ... does not pass with this deed, the same being reserved in a certain deed from one William James’ executor to the said William E. Waddey, Sr., dated First day of December, A.D., 1857, and of record in the clerk’s office of said county.” Exhibit 11 depicts the location of the cemetery.

No archaeological sites were found during the reconnaissance survey of the 185-acre project area. Shovel testing and pedestrian survey in various portions of the tract indicated that the entire project area has a low potential for containing prehistoric archaeological resources, primarily due to the lack of a nearby permanent water source. Based on historic map research, the project area was not developed prior to the twentieth century, and there is no evidence for any earlier historic occupations, other than the nineteenth century cemetery. For these reasons, it was reported in the CRRS that the project area is unlikely to contain any significant prehistoric or historic archaeological sites, and that no additional archaeological investigations are warranted for the project tract.

The architectural survey recorded eleven historic properties within the potential view shed for the project. One property (065-5036) a c.1870 I-house and historic outbuildings were identified on the parcel for the project. The project as proposed will not directly impact these structures.



Due to material alterations and lack of architectural distinction none of the resources were determined to be eligible for the NRHP. Therefore, no additional architectural survey investigations are warranted for the project.

A 40-foot by 40-foot cemetery is located on the south central portion of the site, within a wooded area designated as a wetland. As the cemetery is located within the boundaries of protected wetland area, no construction or development will occur in the area of the cemetery, and the cemetery will not be directly impacted by the project.

There are no anticipated negative impacts to cultural resources (archaeological or historic) and no mitigation is anticipated. However, there is the potential to encounter currently undiscovered cultural resources during the site development process. Potential management measures should include stoppage of work if previously undiscovered cultural resources are encountered during the project. If buried cultural resources are discovered during construction activities, all construction activity should cease within an appropriate radius (no less than 50') until the exposed cultural resources can be examined by a qualified archaeologist and Virginia SHPO staff notified.

Proposed development plans must not be modified to result in any encroachment to the areas of the site containing the cemetery.

Consultation with the Virginia Department of Historic Resources (DHR) is pending. The DHR consultation and commendations will be incorporated into the final application. If any recommendations or mitigation measures are provided by the DHR, they will be adhered to as part of the Virginia DEQ Permit by Rule.

C. Analysis of other natural resources. Including: a preconstruction desktop survey of natural heritage resources within the disturbance zone.

The Virginia Department of Conservation and Recreation (VDCR) Natural Heritage Program (NHP) office was contacted with a request for species occurrence data in the area of the site. The VDCR-NHP responded with a report that identified no potential species occurrences at the site. Furthermore, Terracon provided a Threatened and Endangered Species Assessment report to the VDGIF for review prior to the preparation of this application package. In an email response from Mr. Ernie Aschenbach, no potential impacts to species were identified. VDGIF recommended using native plant-seed mix for all ground cover, and contacting DCR-DNH for guidance on native plantings. VDGIF also recommended strict adherence to erosion and sedimentation controls during all land-disturbing activity.

The project involves the conversion of agriculture crop fields into a solar farm. Hecate intends to use native plant species for ground cover beneath the panel arrays, which will provide beneficial habitat for native and migratory wildlife. The transformation from exposed soil to native vegetation will reduce sediment runoff, and the elimination of agricultural crop fields will result in reduced nutrient/agricultural runoff. It should also be noted that a wetland delineation was completed at the site, and the delineated wetland areas on the southern portion of the site will be avoided during construction and operation of the solar farm.



- D. Summary report.** The application shall assess and describe the expected beneficial and adverse impacts, if any, of the proposed project on wildlife and historic resources identified by these studies and analyses. The summary shall include the findings of data and supporting documents of studies A, B, and C.

Based on the previously discussed items in subsections A, B, and C, along with attached data and supporting documentation, it is not expected that any significant adverse effect to wildlife or historic resources will result from this proposed project. It is expected that the proposed project represents a significant benefit to Virginia's natural resource through the generation of clean energy, reduction of agricultural runoff, reduced storm water and sediment runoff, enhanced soil structure and organic content, and the re-introduction of native plant species to the area which will result in an increase in habitat for both native and migratory wildlife.

This analysis demonstrates that the proposed project is expected to comply with the requirements, and intent, of the PBR.

2.1.8 Requirement Eight: Mitigation Plan

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 8 of the Code of Virginia, furnishes to the department a mitigation plan pursuant to 9VAC15-60-60 that details reasonable actions to be taken by the owner or operator to avoid, minimize, or otherwise mitigate such impacts, and to measure the efficacy of those actions; provided, however, that the provisions of this subdivision shall only be required if the department determines, pursuant to 9VAC15-60-50, that the information collected pursuant to § 10.1-1197.6 B 7 of the Code of Virginia and 9VAC15-60-40 indicates that significant adverse impacts to wildlife or historic resources are likely. The mitigation plan shall be an addendum to the operating plan of the solar energy project and the owner or operator shall implement the mitigation plan as deemed complete and adequate by the department. The mitigation plan shall be an enforceable part of the permit by rule;

9VAC15-60-50. Determination of likely significant adverse impacts.

A. The department shall find that significant adverse impacts to wildlife [or historic resources] are likely whenever the wildlife analyses prescribed in 9VAC15-60-40A document that any of the following conditions exists:

- 1. State-listed T&E wildlife are found to occur within the disturbance zone or the disturbance zone is located on or within one-half mile of a known or potential sea turtle nesting beach.*
- 2. The disturbance zone is located in part or in whole within zones 1, 2, 3, 4, 5, 10, 11, 12, or 14 on the Coastal Avian Protection Zones (CAPZ) map.*

B. The department shall find that significant adverse impacts to historic resources are likely whenever the historic resources analyses prescribed by 9VAC15-60-40 B indicate that the proposed project is likely to diminish significantly any aspect of a historic resource's integrity.

9VAC15-60-60. Mitigation plan.

A. If the department determines that significant adverse impacts to wildlife or historic resources or both are likely, then the applicant shall prepare a mitigation plan.

B. Mitigation measures for significant adverse impacts to wildlife shall include:

- 1. For state-listed T&E wildlife, the applicant shall take all reasonable measures to avoid significant adverse impacts or shall demonstrate in the mitigation plan what significant adverse impacts cannot practicably be avoided and why additional proposed actions are reasonable. These additional proposed actions may include best practices to avoid, minimize, or offset adverse impacts to resources analyzed pursuant to 9VAC15-60-40 A or C.*
- 2. For proposed projects where the disturbance zone is located on or within one-half mile of a known or potential sea turtle nesting beach, the applicant shall take all reasonable measures to avoid significant adverse impacts or shall demonstrate in the mitigation plan what significant adverse impacts cannot*

practicably be avoided, and why additional proposed mitigation actions are reasonable. Mitigation measures shall include the following:

- a. Avoiding construction within likely sea turtle crawl or nesting habitats during the turtle nesting and hatching season (May 20 through October 31). If avoiding construction during this period is not possible, then conducting daily crawl surveys of the disturbance zone (May 20 through August 31) and one mile beyond the northern and southern reaches of the disturbance zone (hereinafter "sea turtle nest survey zone") between sunrise and 9 a.m. by qualified individuals who have the ability to distinguish accurately between nesting and nonnesting emergencies.*
 - b. If construction is scheduled during the nesting season, then including measures to protect nests and hatchlings found within the sea turtle nest survey zone.*
 - c. Minimizing nighttime construction during the nesting season and designing project lighting during the construction and operational phases to minimize impacts on nesting sea turtles and hatchlings.*
- 3. For projects located in part or in whole within zones 1, 2, 3, 4, 5, 10, 11, 12, or 14 on the Coastal Avian Protection Zones (CAPZ) map, contribute \$1,000.00 per megawatt of rated capacity, or partial megawatt thereof, to a fund designated by the department in support of scientific research investigating the impacts of projects in CAPZ on avian resources.*

C. Mitigation measures for significant adverse impacts to historic resources shall include:

- 1. Significant adverse impacts to VLR-eligible or VLR-listed architectural resources shall be minimized, to the extent practicable, through design of the solar energy project or the installation of vegetative or other screening.*
- 2. If significant adverse impacts to VLR-eligible or VLR-listed architectural resources cannot be avoided or minimized such that impacts are no longer significantly adverse, then the applicant shall develop a reasonable and proportionate mitigation plan that offsets the significantly adverse impacts and has a demonstrable public benefit and benefit for the affected or similar resource.*
- 3. If any identified VLR-eligible or VLR-listed archaeological site cannot be avoided or minimized to such a degree as to avoid a significant adverse impact, significant adverse impacts of the project will be mitigated through archaeological data recovery.*

Compliance Analysis:

The following considerations were made regarding whether the project to have a likely significant adverse impact to wildlife or historic resources:

- State-listed T&E wildlife are **not** found to occur within the disturbance zone.
- The disturbance zone is **not** located on or within one-half mile of a known or potential sea turtle nesting beach.

- The disturbance zone **is located** in part or in whole within zones 1, 2, 3, 4, 5, 10, 11, 12, or 14 on the Coastal Avian Protection Zones (CAPZ) map (**the project site is located within CAPZ 5**).
- The historic resources analyses prescribed by 9VAC15-60-40 B **does not** indicate that the proposed project is likely to diminish significantly any aspect of a historic resource's integrity.

Based on these considerations, PBR-required mitigation for the project will consist of a contribution of \$1,000.00 per megawatt of rated capacity, or partial megawatt thereof, to a fund designated by the department in support of scientific research investigating the impacts of projects in CAPZ on avian resources. To address the mitigation required, Hecate Energy, LLC will provide the required mitigation payment (\$20,000). Because the mitigation plan includes only a financial contribution and not operation procedures, a mitigation plan is not expected to be applicable for this project.

It should be noted that, while not required per the DEQ PBR, the following mitigation measures will be incorporated into the proposed project:

- The proposed project will adhere to the terms and stipulations of the approved Northampton County Zoning Ordinance Special Use Permit.
- The project site contains delineated wetlands, which will be avoided during construction and operation of the proposed solar farm. A final determination of wetland boundaries will be obtained from the USACE prior to site development. If the boundaries of mapped wetlands are revised, proposed project plans will be revised correspondingly to avoid impacts to designated wetlands. Consultation will be completed with USACE, including obtaining an approved JD, prior to construction.
- Construction activities will be performed by methods that prevent entrance or accidental spillage of solid matter, contaminants debris, and other objectionable pollutants and wastes into flowing streams or dry water courses, lakes and underground water sources. Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or water courses shall not be performed without prior approval of appropriate state agencies.
- If previously undiscovered cultural resources are encountered during the site development process, potential management measures will include stoppage of work. All construction activity will cease within an appropriate radius (no less than 50') until the exposed cultural resources can be examined by a qualified archaeologist and Virginia SHPO staff notified.
- Proposed development plans will not be modified to result in any encroachment to the areas of the site containing the cemetery.
- Tree clearing will be performed outside of the months of June and July to avoid impacts to the Northern long-eared bat under the conditions of the 4(d) rule.
- Native plant-seed mix will be utilized for ground cover wherever feasible, and Hecate will consult with DHR regarding appropriate native species.

- Strict adherence to erosion and sedimentation controls will be applied during all land-disturbing activity
- Dust mitigation measures will be employed during construction of the proposed solar farm. Measures may include watering of disturbed areas and sweeping or other methods to control tire track-out at intersections with construction and paved areas. Minor emissions from construction can be further reduced or mitigated through the use of best management practices (BMPs). BMPs for dust control include spraying water on exposed surfaces to minimize dust, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize fugitive dust, using a soil stabilizer (chemical dust suppressor), mulching, using a temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks transporting soil, sand, or other loose material off-site.
- BMPs for construction vehicle and equipment emissions will include limiting vehicle idling time, using low or ultra-low sulfur fuel (including biodiesel), conducting proper vehicle maintenance, and using electric-powered tools (instead of gas-powered tools) wherever feasible. It is anticipated that construction contractors will properly maintain their fleet of vehicles/equipment so that air emissions are kept to a minimum over time.
- Designated 60-foot foot buffers will be maintained around the project perimeter, and existing vegetation within buffers will be preserved to shield the project from adjoining properties.
- Electrical equipment developed at the site will contain appropriate clearances from sensitive receptors, security fencing and controlled access.



2.1.9 Requirement Nine: Certification of Design Incorporating Mitigation Plan

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 9 of the Code of Virginia, furnishes to the department a certification signed by a professional engineer licensed in Virginia that the project is designed in accordance with 9VAC15-60-80;

Compliance Analysis:

A certification by a professional engineer licensed in Virginia is not expected to be applicable as the Formal Mitigation plan to comply with PBR includes a financial contribution only, and does not include any engineering design features.



2.1.10 Requirement Ten: Operation Plan Incorporating Mitigation Plan

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 10 of the Code of Virginia, furnishes to the department an operating plan that includes a description of how the project will be operated in compliance with its mitigation plan, if such a mitigation plan is required pursuant to 9VAC15-60-50;

Compliance Analysis:

An operation plan incorporating the mitigation plan is not expected to be applicable as the Formal Mitigation plan to comply with PBR includes a financial contribution only, and does not include any engineering design features.



2.1.11 Requirement Eleven: Site Plan and Context Map

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 11 of the Code of Virginia, furnishes to the department a detailed site plan meeting the requirements of 9VAC15-60-70;

9VAC15-60-70. Site plan and context map requirements.

- A. The applicant shall submit a site plan that includes maps showing the physical features, topography, and land cover of the area within the site, both before and after construction of the proposed project. The site plan shall be submitted at a scale sufficient to show, and shall include, the following: (i) the boundaries of the site; (ii) the location, height, and dimensions of all existing and proposed PV systems, other structures, fencing, and other infrastructure; (iii) the location, grades, and dimensions of all temporary and permanent on-site and access roads from the nearest county or state maintained road; and (iv) water bodies, waterways, wetlands, and drainage channels.*
- B. The applicant shall submit a context map including the area encompassed by the site and within five miles of the site boundary. The context map shall show state and federal resource lands and other protected areas, Coastal Avian Protection Zones, historic resources, state roads, waterways, locality boundaries, forests, open spaces, and transmission and substation infrastructure.*

Compliance Analysis:

A site plan has been provided in accordance with 9VAC15-60-70A and a context map has been provided in accordance with 9VAC15-60-70B. Both maps are included in Application Attachments, Part Eleven.



2.1.12 Requirement Twelve: Certification of Application for Environmental Permits

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 12 of the Code of Virginia, furnishes to the department a certification signed by the applicant that the small solar energy project has applied for or obtained all necessary environmental permits;

Compliance Analysis:

The applicant has applied for and obtained all necessary environmental permits for the proposed project. A certification is included in Application Attachment Twelve.



2.1.13 Requirement Thirteen: Public Review

DEQ PBR Requirement:

Prior to authorization of the project and in accordance with § 10.1-1197.6 B 13 and 14 of the Code of Virginia, conducts a 30-day public review and comment period and holds a public meeting pursuant to 9VAC15-60-90. The public meeting shall be held in the locality or, if the project is located in more than one locality, in a place proximate to the location of the proposed project. Following the public meeting and public comment period, the applicant shall prepare a report summarizing the issues raised by the public and include any written comments received and the applicant's response to those comments. The report shall be provided to the department as part of this application;

Compliance Analysis:

A public review and comment period will be conducted commencing June 10, 2016 through July 10, 2016. Documents will be made available for public review at the Northampton County Planning Department (in the locality of Northampton County). A public meeting will be held on June 29, 2016 at the Northampton High School (in the locality of Northampton County). Notice of the public review and comment period and public meeting will be published in the Eastern Shore News on May 25, 2016 and June 1, 2016. Comments provided by the public will be incorporated into this application upon the cessation of the 30 day comment period.



2.1.14 Requirement Fourteen: Permit Fee

DEQ PBR Requirement:

In accordance with 9VAC15-60-110, furnishes to the department the appropriate fee.

Each application for a permit by rule and each application for a modification of a permit by rule is a separate action and shall be assessed a separate fee. The amount of the permit application fee is based on the costs associated with the permitting program required by this chapter. The fee schedules are shown in the following table:

<i>Type of Action</i>	<i>Fee</i>
<i>Permit by rule application – by rated capacity:</i>	
<i>>5 MW up to and including 25 MW</i>	<i>\$8,000</i>
<i>>25 MW up to and including 50 MW</i>	<i>\$10,000</i>
<i>>50 MW up to and including 75 MW</i>	<i>\$12,000</i>
<i>>75 MW up to and including 100 MW</i>	<i>\$14,000</i>
<i>Permit by rule modification</i>	<i>\$4,000</i>

Compliance Analysis:

Payment of \$8,000 will be provided with the final application, as stipulated by the PBR (9VAC15-60-110 C).

DEQ PBR Application Attachments

1. Notice of Intent

Via Email and US Postal Service

October 12, 2015

Ms. Mary E. Major
Renewable Energy Policy Manager
Department of Environmental Quality
P. O. Box 1105
629 East Main Street
Richmond, Virginia 23218
mary.major@deq.virginia.gov

RE: Notice of Intent for Solar Energy Project – Full PBR Project – Hecate Energy Cherrydale LLC

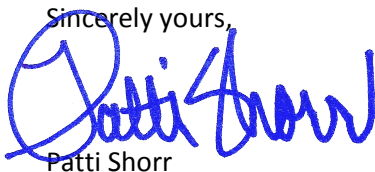
Dear Beth,

On behalf of Hecate Energy Cherrydale LLC, I am hereby providing notice to the Department of Environmental Quality of our intent to submit the necessary documentation for a permit by rule for a small renewable energy project (solar) in Eastville (Northampton County), Virginia, pursuant to Virginia regulation 9VAC15-60.

The Project will be located on a 236 acre parcel on the southeast corner of Seaside Road and Cherrydale Drive in Northampton County, Virginia and will consist of 79,800 x 310-watt panels plus 10 x 2-megawatt inverters which will provide no less than 20 MWs of nameplate capacity.

If the Department has any questions regarding this Project, please feel free to contact me at any time.

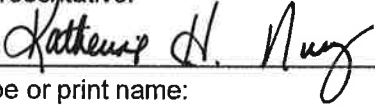
Sincerely yours,


Patti Shorr

Patti Shorr
VP Project Development
Hecate Energy
PShorr@HecateEnergy.com
www.HecateEnergy.com
614-205-3798

Regards,
Hecate Energy

2. Compliance with Local Land Use Ordinances

Virginia Department of Environmental Quality Small Renewable Energy Projects (Solar) Local Governing Body Certification Form	
Facility Name and Location: Hecate Energy Cherrydale, LLC 15446 Seaside Road, Cape Charles, VA	
Applicant's Name: Hecate Energy Cherrydale, LLC	
Applicant's Mailing Address: 115 Rosa Parks Blvd. Nashville, TN 37203	Telephone Number and Email Address: 614/205-3798 DShorr@HecateEnergy.com
<p>The applicant or his representative is submitting an application for a small renewable energy permit by rule from the Virginia Department of Environmental Quality. In accordance with § 10.1 - 1197.6 B 2 of the Code of Virginia, before such permit application can be considered complete, the applicant must obtain a certification from the governing body of the locality or localities in which the small renewable energy project will be located that the project complies with all applicable land use ordinances.</p> <p>The undersigned requests that an authorized representative of the local governing body sign the certification statement below. In addition, by signing below, the applicant affirms that he has also submitted this form to other localities, if any, in which the proposed project will be located.</p>	
Applicant's signature:	Date:
<p><i>The undersigned local government representative certifies that the proposed small renewable energy project complies with all applicable land use ordinances, as follows:</i></p> <p>(Check one block)</p> <p><input checked="" type="checkbox"/> The proposed facility complies with all applicable land use ordinances.</p> <p><input type="checkbox"/> The proposed facility does not comply with all applicable land use ordinances.</p>	
Signature of authorized local government representative: 	Date: May 11, 2016
Type or print name: Katherine H. Nunez	Title: County Administrator
County, City or Town: Northampton County, VA	

3. Interconnection Studies

***Generation Interconnection
System Impact Study Report***

for

***PJM Generation Interconnection Request
Queue Position Z2-012***

“Weirwood-Eastville 69 kV”

March 2015

Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The Interconnection Customer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

Hecate Energy Cherrydale, LLC, the Interconnection Customer (IC), has proposed a 20 MWE (7.6 MWC; 20 MW MFO) solar powered generating facility to be located in Cape Charles, Northampton County, Virginia. PJM studied Z2-012 as a 20 MW injection into the Old Dominion Electric Cooperative (ODEC) system as a tap of the Weirwood-Eastville 69 kV circuit and evaluated it for compliance with reliability criteria for summer peak conditions in 2018.

Point of Interconnection

The Z2-012 project will connect with the ODEC system as a tap of the Bayview-Kellam 69 kV circuit (see Attachment 1).

Interconnection Customer Scope of Work

The Z2-012 IC will be responsible for the construction of all generating station facilities on the Z2-012 side of the Point of Interconnection (POI) as shown in the Attachment 1 one-line diagram. The IC is required to design, construct, and own the 69 kV line from the POI to the Customer Facility. This line must be built in accordance with RUS standards or an accepted national standard, be effectively grounded, and appropriately shielded from lightning. (Refer to RUS bulletins 1728f-810 and 1724E-200.) The IC's transformer shall be connected wye-ground on the 69 kV side and delta on the low-voltage side. ODEC requires that intertie protection relaying (including provision to receive transfer trip) and supervisory control and data acquisition (SCADA) be located at the IC's 69 kV interrupting device located at the POI (see Attachment 2).

It is important for the IC to be aware that when the 69 kV line is out of service for maintenance north of the POI, the load south of Weirwood will be on distribution and there will be no connection to the IC.

Protection equipment --

The IC is responsible for the design and implementation of all protection equipment on the Z2-012 side of the POI as shown on Attachment 1 and will do so in accordance with good utility practice. Relay settings for functions tripping for line faults (50, 50G, 21) and breaker failure settings shall be submitted to ODEC for review and approval.

ODEC will provide sensing and a transfer trip signal to the POI for all 69 kV faults on the line from Kellam to Bayview. The IC will provide a 69 kV interrupting device at the POI beyond which ODEC protection will no longer be a primary means of interrupting fault current. The device **shall not** reclose after tripping. The IC is required to provide ODEC with any information necessary to set ODEC line relaying and coordinate with their protective device and to trip the device upon receipt of the transfer trip signal.

Metering Equipment --

Installation of revenue grade Metering Equipment will be required at the POI. At the IC's discretion, ODEC will design and supply the required metering equipment but all the installation cost would be borne by the IC. ODEC requires that power quality metering be installed to monitor compliance with industry standards for harmonics.

The IC is also required to provide revenue metering and real-time telemetry data to PJM in compliance with the requirements listed in PJM Manuals M-01 and M-14. At the IC's discretion, ODEC will design and supply the required telemetering equipment but all the installation cost would be borne by the IC.

Distribution Service Requirements--

The IC must submit a request for electric service through A&N Electric Cooperative (ANEC) if back up electric service at less than 69 kV is desired.

Transmission Owner (ODEC) Scope of Work

Construct a new three-switch tap structure substation by cutting the Bayview-Kellam 69 kV circuit. PJM Network Upgrade Number n4367.

The total estimated cost to perform this work is **\$500,000** excluding any applicable state or federal taxes.

A further breakdown of the cost is as follows:

\$ 90,000.00	69 kV structures
\$ 60,000.00	69 kV switches
\$ 10,000.00	69kV lightning arrestors
\$ 10,000.00	Power quality metering (Installed on IC CT's and VT's)

\$ 30,000.00	Additional conduit/junction boxes/control wiring
\$ 100,000.00	Engineering
\$ 100,000.00	Relaying and Communications for Transfer Trip
<u>\$ 100,000.00</u>	Construction Labor
\$ 500,000.00	Total Estimated Attachment Facilities Cost

The total estimated time to construct the Attachment Facilities is **18 months**.

Connection cost estimates are based on the assumptions stated in the following Interconnection Issues section, and the assumption that the IC desires to have the entire generator output (20 MW) deliverable during sunny light load conditions. Network impacts and associated upgrade requirements are addressed at the end of the report.

These transmission costs exclude any applicable state or federal taxes. If at a future date Federal CIAC taxes are deemed necessary by the IRS for this project, PJM, ANEC, and ODEC shall be reimbursed by the IC for such taxes.

Costs for extraordinary Threatened and Endangered Species, Archaeological, Cultural, or other as yet unidentified mitigation strategies are not estimated nor included in the above estimate. No environmental, real estate, or permitting issues were reviewed for the Z2-012 Impact Study.

Interconnection Issues

Z2-012 Inverter and GSU modeling

The Z2-012 Interconnection Customer must provide ODEC and PJM with the transformer test reports and a model of the inverters once they are available in order to perform more detailed analyses.

Z2-012 Generator Harmonic Requirements

Harmonic Voltage Requirements:

On the 69 kV system, the total harmonic distortion to the fundamental voltage wave from a single customer is limited to 1.5% of nominal. In addition, no individual harmonic component can exceed 1.0% of the fundamental system voltage.

Maximum Allowable Harmonic Voltage Distortion Table (Tariff Rule 32)		
Voltage Level	Distortion Factor (% System Voltage)	Individual Harmonic (% System Voltage)
69 kV through 138 kV	1.5	1

Harmonic current limits must comply with IEEE standard 519 (see table 10.2 and 10.3 limits for power generation). Harmonic filtering sufficient to limit harmonic current to the limits proscribed by these tables may need to be installed. Z2-012 will be responsible for installing such filtering and may be disconnected until remedies are taken if these standards are violated.

Current Distortion Limits in % of 60~ Current (from IEEE 519 tables 10.2 and 10.3)
--

Voltage Level	<11	11<h<17	17<h<23	23<h<35	35<h	TDD
69 kV	2.0	1.0	0.75	0.3	0.15	2.5
25 kV	4.0	2.0	1.5	0.6	0.3	5.0

Z2-012 Inverter Regulation or Reactive Support Requirements

As specified in Interconnection Service Agreement, Appendix 2, Section 4.7.1.1 of the PJM OATT (Open Access Transmission Tariff), the Z2-012 generator will need to design its Facility to meet the following power factor requirement:

“For all new wind-powered and other non-synchronous generation facilities, if determined in the system impact study to be required for the safety or reliability of the Transmission System, the Generation Interconnection Customer shall design its Customer Facility with the ability to maintain a composite power delivery at continuous rated power output at a power factor of at least 0.95 leading to 0.95 lagging.”

A power flow analysis reveals that a partly cloudy day during peak load conditions will result in voltage fluctuations of 3.5%, which will cause noticeable flicker, should the generator being operating at unity power factor and experience a decrease in MW output of 80%. Therefore, the IC will need to be able to operate at both lagging and leading power factors and vary the reactive output of the generator as power output varies in order to maintain consistent voltage on the transmission system.

Preliminary Schedule and Notes / Assumptions

ODEC will begin the project only after the PJM 3-party Interconnection Service Agreement (ISA) and Interconnection Construction Service Agreement (ICSA) are fully executed and ODEC receives a written authorization by PJM to commence activities. The estimated time to complete the Attachment Facilities work is approximately **18 months** after the execution of an ICSA. The schedule for the 69 kV transmission and substation work to accommodate Z2-012 would depend on the project start date. The work to accommodate Z2-012 will require transmission line outages. ODEC’s outage windows for construction are typically available in the spring and fall of the year. Missing an outage window could result in project delays.

Notes / Assumptions:

During construction, if extreme weather conditions or other system safety concerns arise, field construction may need to be rescheduled, which could possibly impact the schedule plan.

Excepting any operational, governmental and/or environmental regulatory delays, the use of additional resources, such as overtime, premiums for expedited material, and/or contractor labor, may enable ODEC to decrease this construction period. It is also assumed that all right-of-way and easements are secured without impact on anticipated construction start dates.

Transmission Network Impacts

Potential transmission network impacts are as follows:

Generator Deliverability

*(Single or N-1 contingencies for the **Capacity** portion only of the interconnection)*

None

Multiple Facility Contingency

*(Double Circuit Tower Line, Line with Failed Breaker and, Bus Fault contingencies for the **Full** energy output.*

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. “Network Impacts”, identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Short Circuit

No issues identified.

Stability Analysis

Not required due to project size.

Light Load Analysis

(Light Load Studies to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

Not Required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts,” initially caused by the addition of this project’s generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.

None

Potential Congestion due to Local Energy Deliverability

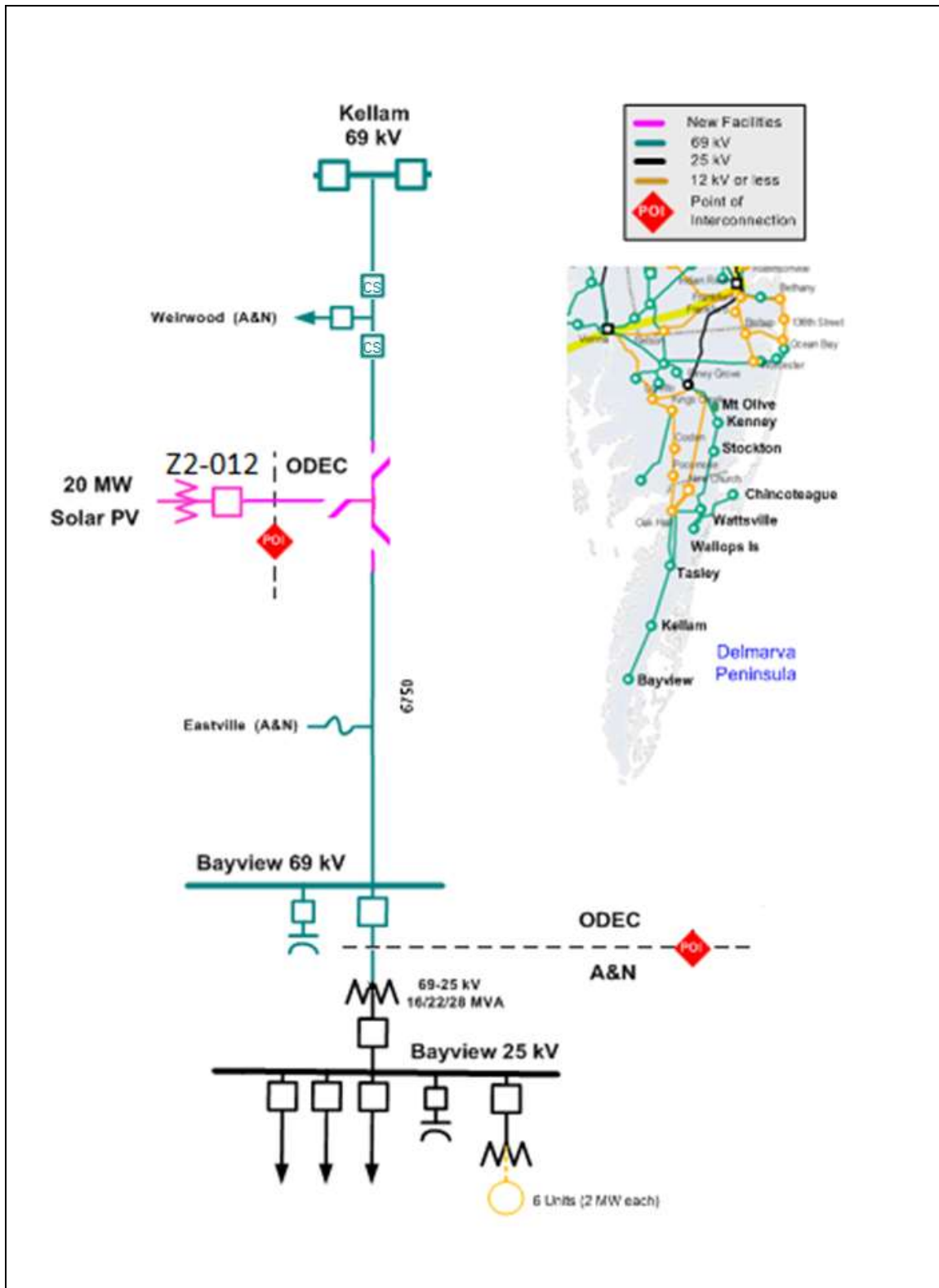
(PJM also studied the delivery of the energy portion of the surrounding generation. Any potential problems identified below are likely to result in operational restrictions to the project under study. The Interconnection Customer can proceed with Network Upgrades to eliminate the operational restriction at their discretion by submitting a Transmission Interconnection Request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full deliverability for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which analyzes all overload conditions associated with the identified overloaded element(s). As a result of the aggregate energy resources in the area, the following violations were identified:

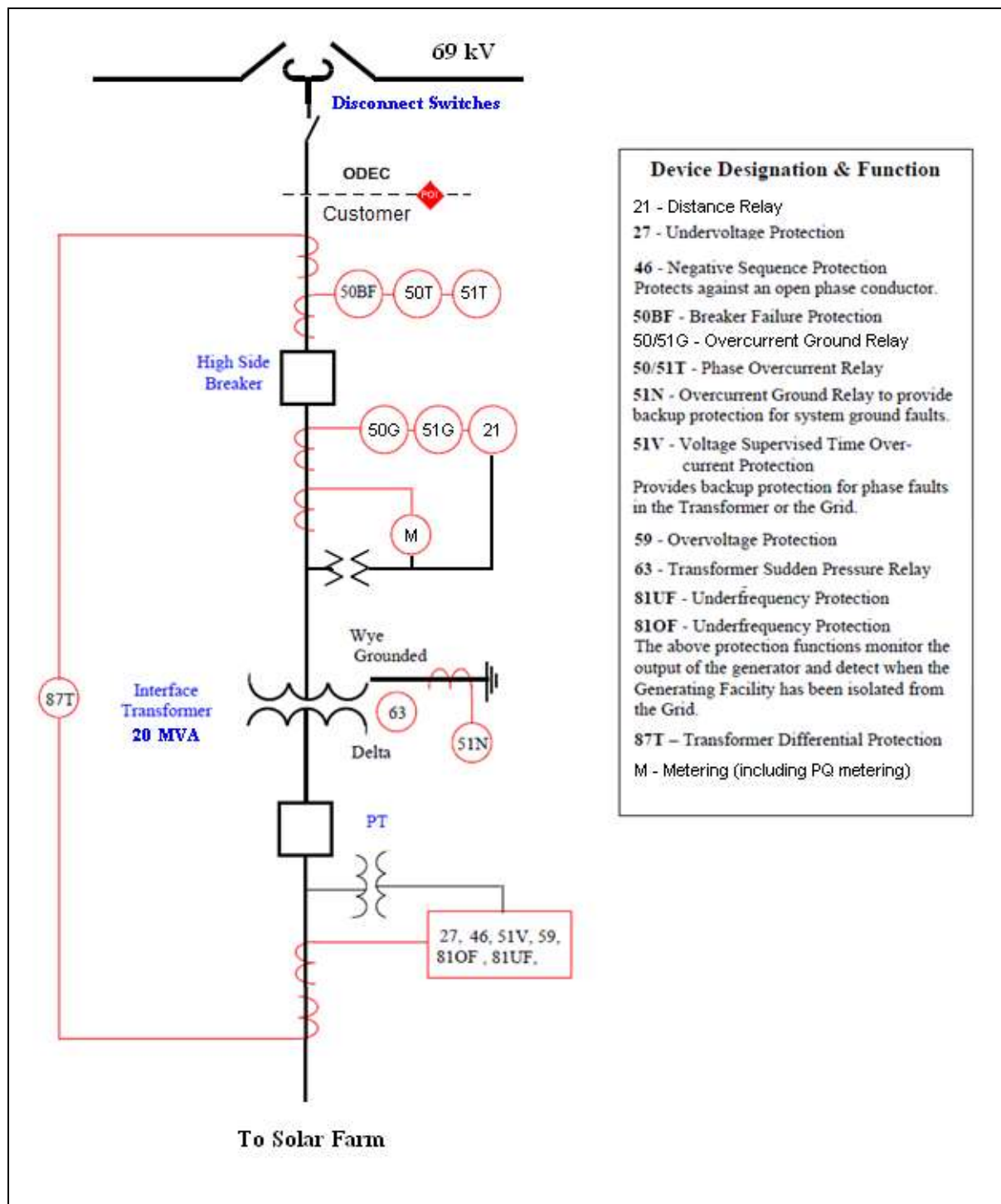
These are **not** required reliability upgrades.

1. (DP&L - DP&L) The PINEY_69-M HERMON 69 kV line (from bus 232274 to bus 232272 ckt 1) loads from 105.39% to 107.17% (DC power flow) of its emergency rating (143 MVA) for the single line contingency outage of 'LORETO AT1&2'. This project contributes approximately 2.56 MW to the thermal violation.
2. (DP&L - DP&L) The OAKHL_69-WATTSVIL 69 kV line (from bus 232280 to bus 232281 ckt 1) loads from 91.69% to 101.64% (DC power flow) of its emergency rating (89 MVA) for the single line contingency outage of 'CKT 137AC'. This project contributes approximately 8.4 MW to the thermal violation.

Attachment 1



Attachment 2 Protective Relay Functions Required



4. Interconnection Agreements

05-26-15A11:34 RCVD

Service Agreement No. []

(PJM Queue #Z2-012)

INTERCONNECTION SERVICE AGREEMENT

Among

PJM INTERCONNECTION, L.L.C.

And

HECATE ENERGY CHERRYDALE, LLC

And

OLD DOMINION ELECTRIC COOPERATIVE

INTERCONNECTION SERVICE AGREEMENT

**By and Among
PJM Interconnection, L.L.C.
And
Hecate Energy Cherrydale, LLC
And
Old Dominion Electric Cooperative
(PJM Queue Position #X2-012)**

- 1.0 Parties. This Interconnection Service Agreement (“ISA”) including the Specifications, Schedules and Appendices attached hereto and incorporated herein, is entered into by and between PJM Interconnection, L.L.C., the Regional Transmission Organization for the PJM Region (hereinafter “Transmission Provider” or “PJM”), Hecate Energy Cherrydale, LLC (“Interconnection Customer”) and Old Dominion Electric Cooperative (“Interconnected Transmission Owner” or “ODEC”). All capitalized terms herein shall have the meanings set forth in the appended definitions of such terms as stated in Part I of the PJM Open Access Transmission Tariff (“Tariff”).
- 2.0 Authority. This ISA is entered into pursuant to Part VI of the Tariff. Interconnection Customer has requested an Interconnection Service Agreement under the Tariff, and Transmission Provider has determined that Interconnection Customer is eligible under the Tariff to obtain this ISA. The standard terms and conditions for interconnection as set forth in Appendix 2 to this ISA are hereby specifically incorporated as provisions of this ISA. Transmission Provider, Interconnected Transmission Owner and Interconnection Customer agree to and assume all of the rights and obligations of the Transmission Provider, Interconnected Transmission Owner and Interconnection Customer, respectively, as set forth in Appendix 2 to this ISA.
- 3.0 Customer Facility Specifications. Attached are Specifications for the Customer Facility that Interconnection Customer proposes to interconnect with the Transmission System. Interconnection Customer represents and warrants that, upon completion of construction of such facilities, it will own or control the Customer Facility identified in section 1.0 of the Specifications attached hereto and made a part hereof. In the event that Interconnection Customer will not own the Customer Facility, Interconnection Customer represents and warrants that it is authorized by the owner(s) thereof to enter into this ISA and to represent such control.
- 4.0 Effective Date. Subject to any necessary regulatory acceptance, this ISA shall become effective on the date it is executed by all Interconnection Parties, or, if the agreement is filed with FERC unexecuted, upon the date specified by FERC. This ISA shall terminate on such date as mutually agreed upon by the parties, unless earlier terminated in accordance with the terms set forth in Appendix 2 to this ISA. The term of the ISA shall be as provided in Section 1.3 of Appendix 2 to this ISA. Interconnection Service shall commence as provided in Section 1.2 of Appendix 2 to this ISA.

- 5.0 Security. In accord with Section 212.4 of the Tariff, Interconnection Customer shall provide the Transmission Provider (for the benefit of the Interconnected Transmission Owner) with a letter of credit from an agreed provider or other form of security reasonably acceptable to the Transmission Provider and that names the Transmission Provider as beneficiary ("Security") in the amount of **\$166,667**. This amount represents the sum of the estimated Costs, determined in accordance with Sections 212 and 217 of the Tariff, for which the Interconnection Customer will be responsible, less any Costs already paid by Interconnection Customer. Interconnection Customer acknowledges that its ultimate cost responsibility in accordance with Section 217 of the Tariff will be based upon the actual Costs of the facilities described in the Specifications, whether greater or lesser than the amount of the payment security provided under this section.

Should Interconnection Customer fail to provide security at the time the Interconnection Customer executes this ISA, or, if deferred, by the end of the 120-day period, this ISA shall be terminated.

- 6.0 Project Specific Milestones. In addition to the milestones stated in Section 212.5 of the Tariff, as applicable, during the term of this ISA, Interconnection Customer shall ensure that it meets each of the following development milestones:
- 6.1 Substantial Site work completed. On or before **May 31, 2016**, Interconnection Customer must demonstrate completion of at least 20% of project site construction. At this time, Interconnection Customer must submit to Interconnected Transmission Owner and Transmission Provider initial drawings, certified by a professional engineer, of the Customer Interconnection Facilities.
- 6.2 Delivery of major electrical equipment. On or before **August 31, 2016**, Interconnection Customer must demonstrate that all generating units have been delivered to Interconnection Customer's project site.
- 6.3 Commercial Operation. On or before **November 30, 2016**, Interconnection Customer must demonstrate commercial operation of all generating units. Demonstrating commercial operation includes achieving Initial Operation in accordance with Section 1.4 of Appendix 2 to this ISA and making commercial sales or use of energy, as well as, if applicable, obtaining capacity qualification in accordance with the requirements of the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.
- 6.4 Within one (1) month following commercial operation of generating unit(s), Interconnection Customer must provide certified documentation demonstrating that "as-built" Customer Facility and Customer Interconnection Facilities are in accordance with applicable PJM studies and agreements. Interconnection Customer must also provide PJM with "as-built" electrical modeling data or confirm that previously submitted data remains valid.

Interconnection Customer shall demonstrate the occurrence of each of the foregoing milestones to Transmission Provider's reasonable satisfaction. Transmission Provider may reasonably extend any such milestone dates, in the event of delays that Interconnection Customer (i) did not cause and (ii) could not have remedied through the exercise of due diligence. The milestone dates stated in this ISA shall be deemed to be extended coextensively with any suspension of work initiated by Interconnection Customer in accordance with the Interconnection Construction Service Agreement.

- 7.0 Provision of Interconnection Service. Transmission Provider and Interconnected Transmission Owner agree to provide for the interconnection to the Transmission System in the PJM Region of Interconnection Customer's Customer Facility identified in the Specifications in accordance with Part IV and Part VI of the Tariff, the Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), and this ISA, as they may be amended from time to time.
- 8.0 Assumption of Tariff Obligations. Interconnection Customer agrees to abide by all rules and procedures pertaining to generation and transmission in the PJM Region, including but not limited to the rules and procedures concerning the dispatch of generation or scheduling transmission set forth in the Tariff, the Operating Agreement and the PJM Manuals.
- 9.0 Facilities Study. In analyzing and preparing the System Impact Study, and in designing and constructing the Attachment Facilities, Local Upgrades and/or Network Upgrades described in the Specifications attached to this ISA, Transmission Provider, the Interconnected Transmission Owner(s), and any other subcontractors employed by Transmission Provider have had to, and shall have to, rely on information provided by Interconnection Customer and possibly by third parties and may not have control over the accuracy of such information. Accordingly, NEITHER TRANSMISSION PROVIDER, THE INTERCONNECTED TRANSMISSION OWNER(s), NOR ANY OTHER SUBCONTRACTORS EMPLOYED BY TRANSMISSION PROVIDER OR INTERCONNECTED TRANSMISSION OWNER MAKES ANY WARRANTIES, EXPRESS OR IMPLIED, WHETHER ARISING BY OPERATION OF LAW, COURSE OF PERFORMANCE OR DEALING, CUSTOM, USAGE IN THE TRADE OR PROFESSION, OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE ACCURACY, CONTENT, OR CONCLUSIONS OF THE FACILITIES STUDY OR THE SYSTEM IMPACT STUDY IF A FACILITIES STUDY WAS NOT REQUIRED OR OF THE ATTACHMENT FACILITIES, THE LOCAL UPGRADES AND/OR THE NETWORK UPGRADES, PROVIDED, HOWEVER, that Transmission Provider warrants that the Transmission Owner Interconnection Facilities and any Merchant Transmission Upgrades described in the Specifications will be designed and constructed (to the extent that Interconnected Transmission Owner is responsible for design and construction thereof) and operated in accordance with Good Utility Practice, as such term is defined in the Operating Agreement. Interconnection Customer acknowledges that it has not relied on any

representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

10.0 Construction of Transmission Owner Interconnection Facilities

10.1. Cost Responsibility. Interconnection Customer shall be responsible for and shall pay upon demand all Costs associated with the interconnection of the Customer Facility as specified in the Tariff. These Costs may include, but are not limited to, an Attachment Facilities charge, a Local Upgrades charge, a Network Upgrades charge and other charges, as well as Costs of any Merchant Network Upgrades constructed on behalf of Interconnection Customer. A description of the facilities required and an estimate of the Costs of these facilities are included in Sections 3.0 and 4.0 of the Specifications to this ISA.

10.2. Billing and Payments. Transmission Provider shall bill the Interconnection Customer for the Costs associated with the facilities contemplated by this ISA, estimates of which are set forth in the Specifications to this ISA, and the Interconnection Customer shall pay such Costs, in accordance with Section 11 of Appendix 2 to this ISA and the applicable Interconnection Construction Service Agreement. Upon receipt of each of Interconnection Customer's payments of such bills, Transmission Provider shall reimburse the applicable Interconnected Transmission Owner. Pursuant to Section 212.4 of the Tariff, Interconnection Customer requests that Transmission Provider provide a quarterly cost reconciliation:

_____ Yes

 X No

10.3. Contract Option. In the event that the Interconnection Customer and Interconnected Transmission Owner agree to utilize the Negotiated Contract Option provided by the Interconnection Construction Service Agreement to establish, subject to FERC acceptance, non-standard terms regarding cost responsibility, payment, billing and/or financing, the terms of Sections 10.1 and/or 10.2 of this Section 10.0 shall be superseded to the extent required to conform to such negotiated terms, as stated in a schedule attached to the parties' Interconnection Construction Service Agreement relating to interconnection of the Customer Facility.

10.4 In the event that the Interconnection Customer elects to construct some or all of the Transmission Owner Interconnection Facilities and/or of any Merchant Network Upgrades under the Option to Build of the Interconnection Construction Service Agreement, billing and payment for the Costs associated with the facilities contemplated by this ISA shall relate only to such portion of the Interconnection Facilities and/or any Merchant Network Upgrades as the Interconnected Transmission Owner is responsible for building.

11.0 Interconnection Specifications

- 11.1 Point of Interconnection. The Point of Interconnection shall be as identified on the one-line diagram attached as Schedule B to this ISA.
- 11.2 List and Ownership of Interconnection Facilities. The Interconnection Facilities to be constructed and ownership of the components thereof are identified in Section 3.0 of the Specifications attached to this ISA.
- 11.2A List and Ownership of Merchant Network Upgrades. If applicable, Merchant Network Upgrades to be constructed and ownership of the components thereof are identified in Section 3.0 of the Specifications attached to this ISA.
- 11.3 Ownership and Location of Metering Equipment. The Metering Equipment to be constructed, the capability of the Metering Equipment to be constructed, and the ownership thereof, are identified on the attached Schedule C to this ISA.
- 11.4 Applicable Technical Standards. The Applicable Technical Requirements and Standards that apply to the Customer Facility and the Interconnection Facilities are identified in Schedule D to this ISA.

12.0 Power Factor Requirement.

Consistent with Section 4.7 of Appendix 2 to this ISA, the power factor requirement is as follows:

The results of the System Impact Study require that, for the safety or reliability of the Transmission System, the Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the Point of Interconnection.

- 13.0 Charges. In accordance with Sections 10 and 11 of Appendix 2 to this ISA, the Interconnection Customer shall pay to the Transmission Provider the charges applicable after Initial Operation, as set forth in Schedule E to this ISA. Promptly after receipt of such payments, the Transmission Provider shall forward such payments to the appropriate Interconnected Transmission Owner.
- 14.0 Third Party Beneficiaries. No third party beneficiary rights are created under this ISA, except, however, that, subject to modification of the payment terms stated in Section 10 of this ISA pursuant to the Negotiated Contract Option, payment obligations imposed on Interconnection Customer under this ISA are agreed and acknowledged to be for the benefit of the Interconnected Transmission Owner(s). Interconnection Customer expressly agrees that the Interconnected Transmission Owner(s) shall be entitled to take such legal recourse as it deems appropriate against Interconnection Customer for the payment of any Costs or charges authorized under this ISA or the Tariff with respect to

Interconnection Service for which Interconnection Customer fails, in whole or in part, to pay as provided in this ISA, the Tariff and/or the Operating Agreement.

- 15.0 Waiver. No waiver by either party of one or more defaults by the other in performance of any of the provisions of this ISA shall operate or be construed as a waiver of any other or further default or defaults, whether of a like or different character.
- 16.0 Amendment. This ISA or any part thereof, may not be amended, modified, or waived other than by a written document signed by all parties hereto.
- 17.0 Construction With Other Parts Of The Tariff. This ISA shall not be construed as an application for service under Part II or Part III of the Tariff.
- 18.0 Notices. Any notice or request made by either party regarding this ISA shall be made, in accordance with the terms of Appendix 2 to this ISA, to the representatives of the other party and as applicable, to the Interconnected Transmission Owner(s), as indicated below:

Transmission Provider:

PJM Interconnection, L.L.C.
2750 Monroe Blvd.
Audubon, PA 19403

Interconnection Customer:

Hecate Energy Cherrydale, LLC
115 Rosa Parks Blvd.
Nashville, TN 37203
Attn: Mr. Preston Schulz
Email: PSchultz@hecateenergy.com
Phone: (312) 284-4514

Interconnected Transmission Owner:

Old Dominion Electric Cooperative
4201 Dominion Blvd
Glen Allen, VA 23060
Attn: Mr. D. Richard Beam

- 19.0 Incorporation Of Other Documents. All portions of the Tariff and the Operating Agreement pertinent to the subject matter of this ISA and not otherwise made a part hereof are hereby incorporated herein and made a part hereof.
- 20.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service. Subject to FERC approval, the parties agree that the terms and conditions set forth in Schedule F

hereto are hereby incorporated herein by reference and be made a part of this ISA. In the event of any conflict between a provision of Schedule F that FERC has accepted and any provision of Appendix 2 to this ISA that relates to the same subject matter, the pertinent provision of Schedule F shall control.

- 21.0 Addendum of Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status. To the extent required, in accordance with Section 24.1 of Appendix 2 to this ISA, Schedule G to this ISA shall set forth the Interconnection Customer's agreement to conform with the IRS safe harbor provisions for non-taxable status.
- 22.0 Addendum of Interconnection Requirements for a Wind Generation Facility. To the extent required, Schedule H to this ISA sets forth interconnection requirements for a wind generation facility and is hereby incorporated by reference and made a part of this ISA.
- 23.0 Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All Transmission Providers, Interconnected Transmission Owners, market participants, and Interconnection Customers interconnected with electric systems are to comply with the recommendations offered by the President's Critical Infrastructure Protection Board and best practice recommendations from the electric reliability authority. All public utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.

IN WITNESS WHEREOF, Transmission Provider, Interconnection Customer and Interconnected Transmission Owner have caused this ISA to be executed by their respective authorized officials.

(PJM Queue Position #Z2-012)

Transmission Provider: PJM Interconnection, L.L.C.

By: David M. Egan Manager, Interconnection Planning 6.10.15
Name Title Date

Printed name of signer: _____

Interconnection Customer: Hecate Energy Cherrydale, LLC

By: Preston Schultz Director, Development 05/21/15
Name Title Date

Printed name of signer: Preston Schultz

Interconnected Transmission Owner: Old Dominion Electric Cooperative

By: D. Richard Beam SUP of Power Supply 6/8/15
Name Title Date

Printed name of signer: D. Richard Beam

**SPECIFICATIONS FOR
INTERCONNECTION SERVICE AGREEMENT
By and Among
PJM INTERCONNECTION, L.L.C.
And
HECATE ENERGY CHERRYDALE, LLC
And
OLD DOMINION ELECTRIC COOPERATIVE
(PJM Queue Position # Z2-012)**

1.0 Description of generating unit(s) (the Customer Facility) to be interconnected with the Transmission System in the PJM Region:

a. Name of Customer Facility:

Hecate Energy Cherrydale

b. Location of Customer Facility:

1544 Seaside Road
Cape Charles, VA 23310

c. Size in megawatts of Customer Facility:

For Generation Interconnection Customer:

Maximum Facility Output of 20 MW

d. Description of the equipment configuration:

A ground mounted, inverter based, solar photovoltaic generating facility consisting of solar arrays and a step up transformer with a high side voltage of 69 kV.

2.0 Rights

2.1 Capacity Interconnection Rights:

Pursuant to and subject to the applicable terms of the Tariff, the Interconnection Customer shall have Capacity Interconnection Rights at the Point(s) of Interconnection specified in this Interconnection Service Agreement in the amount of **7.6 MW**.

Pursuant to and subject to the applicable terms of the Tariff, the Interconnection Customer shall have Capacity Interconnection Rights at the Point(s) of Interconnection specified in this Interconnection Service Agreement in the

amount of **7.6 MW** commencing **June 1, 2018**. During the time period from the effective date of this ISA until **May 31, 2018** (the “interim time period”), the Interconnection Customer may be awarded interim Capacity Interconnection Rights in an amount not to exceed **7.6 MW**. The availability and amount of such interim Capacity Interconnection Rights shall be dependent upon completion and results of interim deliverability studies. Any interim Capacity Interconnection Rights awarded during the interim time period shall terminate on **May 31, 2018**.

- 2.1a To the extent that any portion of the Customer Facility described in section 1.0 is not a Capacity Resource with Capacity Interconnection Rights, such portion of the Customer Facility shall be an Energy Resource. PJM reserves the right to limit total injections to the Maximum Facility Output in the event reliability would be affected by output greater than such quantity.

2.5 Incremental Auction Revenue Rights:

Pursuant to Section 231 of the Tariff, Interconnection Customer shall have Incremental Auction Revenue Rights in the following quantities: Quantities of Incremental Auction Revenue Rights will be determined pursuant to the timeframes and procedures set forth in Section 231 of the Tariff.

2.6 Incremental Capacity Transfer Rights:

Pursuant to Section 234 of the Tariff, Interconnection Customer shall have Incremental Capacity Transfer Rights between the following associated source(s) and sink(s) in the indicated quantities: None

3.0 Construction Responsibility and Ownership of Interconnection Facilities

a. Interconnection Customer.

- (1) Interconnection Customer shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

- Construct a switching station including switchgear and a 69 kV high side step up transformer connected wye-ground on the 69 kV side and delta on the low voltage side.
- Construct a 69 kV circuit from the Customer Facility to the Point of Interconnection.
- Install a 69 kV interrupting device at the Point of Interconnection.
- Install equipment to provide revenue metering and real-time telemetry data to ODEC and PJM.

- Design and implementation of all protection equipment on the Z2-012 side of the Point of Interconnection.
- Install harmonic filtering as required.

(2) In the event that, in accordance with the Interconnection Construction Service Agreement, Interconnection Customer has exercised the Option to Build, it is hereby permitted to build in accordance with and subject to the conditions and limitations set forth in that Section, the following portions (1) of the Transmission Owner Interconnection Facilities and/or (2) of any Merchant Network Upgrades which constitute or are part of the Customer Facility:

None

Ownership of the facilities built by Interconnection Customer pursuant to the Option to Build shall be as provided in the Interconnection Construction Service Agreement.

b. Interconnected Transmission Owner

- Construct a new three-switch tap structure substation by cutting the Bayview-Kellam 69 kV circuit. (PJM Network Upgrade Number n4367)
- Provide sensing and a transfer trip signal to the Point of Interconnection for all 69 kV faults on the line from Kellam to Bayview Substations.

4.0 Subject to modification pursuant to the Negotiated Contract Option and/or the Option to Build under the Interconnection Construction Service Agreement, Interconnection Customer shall be subject to the estimated charges detailed below, which shall be billed and paid in accordance with Appendix 2, Section 11 of this ISA and the applicable Interconnection Construction Service Agreement.

4.1 Attachment Facilities Charge: \$400,000

4.2 Network Upgrades Charge: \$100,000

4.3 Local Upgrades Charge: \$0

4.4 Other Charges: \$0

4.5 Cost of Merchant Network Upgrades: \$0

4.6 Cost breakdown:

\$200,000	Direct Labor
\$300,000	Direct Material

\$0 Indirect Labor
\$0 Indirect Material

\$500,000 Total

4.7 Security Amount Breakdown:

\$100,000 Estimated Cost of Non-Direct Connection Local Upgrades and/or
Non-Direct Connection Network Upgrades

plus \$0 Estimated Cost of any Merchant Network Upgrades that
Interconnected Transmission Owner is responsible for building

plus \$66,667 Estimated cost of the work (for the first three months) on the
required Attachment Facilities, Direct Connection Local Upgrades, and Direct
Connection Network Upgrades

plus \$0 Option to Build Security for Attachment Facilities, Direct
Connection Local Upgrades, and Direct Connection Network Upgrades (including
Cancellation Costs)

less \$0 Costs already paid by Interconnection Customer

\$166,667 Total Security required with ISA

APPENDICES:

- **APPENDIX 1 - DEFINITIONS**
- **APPENDIX 2 - STANDARD TERMS AND CONDITIONS FOR INTERCONNECTIONS**

SCHEDULES:

- **SCHEDULE A - CUSTOMER FACILITY LOCATION/SITE PLAN**
- **SCHEDULE B - SINGLE-LINE DIAGRAM**
- **SCHEDULE C - LIST OF METERING EQUIPMENT**
- **SCHEDULE D - APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS**
- **SCHEDULE E - SCHEDULE OF CHARGES**
- **SCHEDULE F - SCHEDULE OF NON-STANDARD TERMS & CONDITIONS**
- **SCHEDULE G - INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS**
- **SCHEDULE H - INTERCONNECTION REQUIREMENTS FOR A WIND GENERATION FACILITY**

APPENDIX 1

DEFINITIONS

**From the PJM Tariff accepted for filing by the Commission
as of the effective date of this agreement**

1. Definitions

1.01 Abnormal Condition:

Any condition on the Interconnection Facilities which, determined in accordance with Good Utility Practice, is: (i) outside normal operating parameters such that facilities are operating outside their normal ratings or that reasonable operating limits have been exceeded; and (ii) could reasonably be expected to materially and adversely affect the safe and reliable operation of the Interconnection Facilities; but which, in any case, could reasonably be expected to result in an Emergency Condition. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not, standing alone, constitute an Abnormal Condition.

1.0A Affected System:

An electric system other than the Transmission Provider's Transmission System that may be affected by a proposed interconnection or on which a proposed interconnection or addition of facilities or upgrades may require modifications or upgrades to the Transmission System.

1.0A.01 Affiliate:

With respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

1.0B Affected System Operator:

An entity that operates an Affected System or, if the Affected System is under the operational control of an independent system operator or a regional transmission organization, such independent entity.

1.1 Ancillary Services:

Those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

1.2 Annual Transmission Costs:

The total annual cost of the Transmission System for purposes of Network Integration Transmission Service shall be the amount specified in Attachment H for each Zone until amended by the applicable Transmission Owner or modified by the Commission.

1.2.01 Applicable Laws and Regulations:

All duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the relevant parties, their respective facilities, and/or the respective services they provide.

1.2A Applicable Regional Entity:

The Regional Entity for the region in which a Network Customer, Transmission Customer, Interconnection Customer, or Transmission Owner operates.

1.2B Applicable Standards:

The requirements and guidelines of NERC, the Applicable Regional Entity, and the Control Area in which the Customer Facility is electrically located; the PJM Manuals; and Applicable Technical Requirements and Standards.

1.2C Applicable Technical Requirements and Standards:

Those certain technical requirements and standards applicable to interconnections of generation and/or transmission facilities with the facilities of an Interconnected Transmission Owner or, as the case may be and to the extent applicable, of an Electric Distributor (as defined in Section 1.8 of the Operating Agreement), as published by Transmission Provider in a PJM Manual provided, however, that, with respect to any generation facilities with maximum generating capacity of 2 MW or less for which the Interconnection Customer executes a Construction Service Agreement or Interconnection Service Agreement on or after March 19, 2005, "Applicable Technical Requirements and Standards" shall refer to the "PJM Small Generator Interconnection Applicable Technical Requirements and Standards." All Applicable Technical Requirements and Standards shall be publicly available through postings on Transmission Provider's internet website.

1.3 Application:

A request by an Eligible Customer for transmission service pursuant to the provisions of the Tariff.

1.3A Attachment Facilities:

The facilities necessary to physically connect a Customer Facility to the Transmission System or interconnected distribution facilities.

1.3AA Attachment H:

Attachment H shall refer collectively to the Attachments to the PJM Tariff with the prefix "H-" that set forth, among other things, the Annual Transmission Rates for Network Integration Transmission Service in the PJM Zones.

1.3B Behind The Meter Generation:

Behind The Meter Generation refers to a generation unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities has consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection); provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Generation Capacity Resource; or (ii) in an hour, any portion of the output of such generating unit[s] that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

1.3BB Black Start Service:

Black Start Service is the capability of generating units to start without an outside electrical supply or the demonstrated ability of a generating unit with a high operating factor (subject to Transmission Provider concurrence) to automatically remain operating at reduced levels when disconnected from the grid.

1.3BB.01 Breach:

The failure of a party to perform or observe any material term or condition of Part IV or Part VI of the Tariff, or any agreement entered into thereunder as described in the relevant provisions of such agreement.

1.3BB.02 Breaching Party:

A party that is in Breach of Part IV or Part VI and/or an agreement entered into thereunder.

1.3BB.03 Cancellation Costs:

The Costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Part IV and/or Part VI of the Tariff.

1.3C Capacity Interconnection Rights:

The rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

1.3D Capacity Resource:

Shall have the meaning provided in the Reliability Assurance Agreement.

1.3E Capacity Transmission Injection Rights:

The rights to schedule energy and capacity deliveries at a Point of Interconnection (as defined in Section 1.33A) of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

1.3F Commencement Date:

The date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

1.4 Commission:

The Federal Energy Regulatory Commission.

1.5 Completed Application:

An Application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

1.5.01 Confidential Information:

Any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party's technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

1.5A Consolidated Transmission Owners Agreement:

The certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C.

1.5B Constructing Entity:

Either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

1.5C Construction Party:

A party to a Construction Service Agreement. "Construction Parties" shall mean all of the Parties to a Construction Service Agreement.

1.5D Construction Service Agreement:

Either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

1.6 Control Area:

An electric power system or combination of electric power systems to which a common automatic generation control scheme is applied in order to:

- (1) match, at all times, the power output of the generators within the electric power system(s) and capacity and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);
- (2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;
- (3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and
- (4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

1.6A Control Zone:

Shall have the meaning given in the Operating Agreement.

1.6B Controllable A.C. Merchant Transmission Facilities:

Transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct

current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Part IV and Part VI of the Tariff.

1.6C Costs:

As used in Part IV, Part VI and related attachments to the Tariff, costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

1.6D Counterparty:

PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a market participant or other customer.

1.7 Curtailment:

A reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

1.7A Customer Facility:

Generation facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Subparts A of Part IV of the Tariff.

1.7A.01 Customer-Funded Upgrade:

Any Network Upgrade, Local Upgrade, or Merchant Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Section 217 of the Tariff, or (ii) is voluntarily undertaken by a market participant in fulfillment of an Upgrade Request pursuant to Section 7.8 of Schedule 1 of the Operating Agreement. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

1.7A.02 Customer Interconnection Facilities:

All facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer's side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

1.7B Daily Capacity Deficiency Rate:

Daily Capacity Deficiency Rate is as defined in Schedule 11 of the Reliability Assurance Agreement.

1.7C Deactivation:

The retirement or mothballing of a generating unit governed by Part V of this Tariff.

1.7D Deactivation Avoidable Cost Credit:

The credit paid to Generation Owners pursuant to section 114 of this Tariff.

1.7E Deactivation Avoidable Cost Rate:

The formula rate established pursuant to section 115 of this Tariff.

1.7F Deactivation Date:

The date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

1.7G Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

1.8 Delivering Party:

The entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

1.9 Designated Agent:

Any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

1.10 Direct Assignment Facilities:

Facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

1.10A [RESERVED]

1.10B Economic Minimum:

The lowest incremental MW output level a unit can achieve while following economic dispatch.

1.11 Eligible Customer:

(i) Any electric utility (including any Transmission Owner and any power marketer), Federal power marketing agency, or any person generating electric energy for sale for resale is an Eligible Customer under the Tariff. Electric energy sold or produced by such entity may be electric energy produced in the United States, Canada or Mexico. However, with respect to transmission service that the Commission is prohibited from ordering by Section 212(h) of the Federal Power Act, such entity is eligible only if the service is provided pursuant to a state requirement that the Transmission Provider or Transmission Owner offer the unbundled transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner.

(ii) Any retail customer taking unbundled transmission service pursuant to a state requirement that the Transmission Provider or a Transmission Owner offer the transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner, is an Eligible Customer under the Tariff. As used in Part VI, Eligible Customer shall mean only those Eligible Customers that have submitted a Completed Application.

1.11.01 Emergency Condition:

A condition or situation (i) that in the judgment of any Interconnection Party is imminently likely to endanger life or property; or (ii) that in the judgment of the Interconnected Transmission Owner or Transmission Provider is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Transmission System, the Interconnection Facilities, or the transmission systems or distribution systems to which the Transmission System is directly or indirectly connected; or (iii) that in the judgment of Interconnection Customer is imminently likely (as determined in a non-discriminatory manner) to cause damage to the Customer Facility or to the Customer Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions, provided that a Generation Interconnection Customer is not obligated by an Interconnection Service Agreement to possess black start capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one or more of the enumerated conditions or situations identified in this definition also exists.

1.11A Energy Resource:

A generating facility that is not a Capacity Resource.

1.11A.01 Energy Settlement Area:

The bus or distribution of busses that represents the physical location of Network Load and by which the obligations of the Network Customer to PJM are settled.

1.11B Energy Transmission Injection Rights:

The rights to schedule energy deliveries at a specified point on the Transmission System. Energy Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System to another control area. Deliveries scheduled using Energy Transmission Injection Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

1.11C Environmental Laws:

Applicable Laws or Regulations relating to pollution or protection of the environment, natural resources or human health and safety.

1.12 Facilities Study:

An engineering study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) to determine the required modifications to the Transmission Provider's Transmission System, including the cost and scheduled completion date for such modifications, that will be required to provide the requested transmission service or to accommodate an Interconnection Request or Upgrade Request. As used in the Interconnection Service Agreement or Construction Service Agreement, Facilities Study shall mean that certain Facilities Study conducted by Transmission Provider (or at its direction) to determine the design and specification of the Interconnection Facilities necessary to accommodate the New Service Customer's New Service Request in accordance with Section 207 of Part VI of the Tariff.

1.12A Federal Power Act:

The Federal Power Act, as amended, 16 U.S.C. §§ 791a, et seq.

1.12B FERC:

The Federal Energy Regulatory Commission or its successor.

1.13 Firm Point-To-Point Transmission Service:

Transmission Service under this Tariff that is reserved and/or scheduled between specified Points of Receipt and Delivery pursuant to Part II of this Tariff.

1.13A Firm Transmission Withdrawal Rights:

The rights to schedule energy and capacity withdrawals from a Point of Interconnection (as defined in Section 1.33A) of a Merchant Transmission Facility with the Transmission System. Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission

Facility that connects the Transmission System with another control area. Withdrawals scheduled using Firm Transmission Withdrawal Rights have rights similar to those under Firm Point-to-Point Transmission Service.

1.13A.01 Force Majeure:

Any cause beyond the control of the affected Interconnection Party or Construction Party, including but not restricted to, acts of God, flood, drought, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance or disobedience, labor dispute, labor or material shortage, sabotage, acts of public enemy, explosions, orders, regulations or restrictions imposed by governmental, military, or lawfully established civilian authorities, which, in any of the foregoing cases, by exercise of due diligence such party could not reasonably have been expected to avoid, and which, by the exercise of due diligence, it has been unable to overcome. Force Majeure does not include (i) a failure of performance that is due to an affected party's own negligence or intentional wrongdoing; (ii) any removable or remediable causes (other than settlement of a strike or labor dispute) which an affected party fails to remove or remedy within a reasonable time; or (iii) economic hardship of an affected party.

1.13A.02 Generation Capacity Resource:

"Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

1.13B Generation Interconnection Customer:

An entity that submits an Interconnection Request to interconnect a new generation facility or to increase the capacity of an existing generation facility interconnected with the Transmission System in the PJM Region.

1.13C Generation Interconnection Facilities Study:

A Facilities Study related to a Generation Interconnection Request.

1.13D Generation Interconnection Feasibility Study:

A study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) in accordance with Section 36.2 of this Tariff.

1.13E Generation Interconnection Request:

A request by a Generation Interconnection Customer pursuant to Subpart A of Part IV of the Tariff to interconnect a generating unit with the Transmission System or to increase the capacity of a generating unit interconnected with the Transmission System in the PJM Region.

1.13F Generation Owner:

An entity that owns or otherwise controls and operates one or more operating generating units in the PJM Region.

1.14 Good Utility Practice:

Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

1.14.01 Governmental Authority:

Any federal, state, local or other governmental, regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, arbitrating body, or other governmental authority having jurisdiction over any Interconnection Party or Construction Party or regarding any matter relating to an Interconnection Service Agreement or Construction Service Agreement, as applicable.

1.14.02 Hazardous Substances:

Any chemicals, materials or substances defined as or included in the definition of “hazardous substances,” “hazardous wastes,” “hazardous materials,” “hazardous constituents,” “restricted hazardous materials,” “extremely hazardous substances,” “toxic substances,” “radioactive substances,” “contaminants,” “pollutants,” “toxic pollutants” or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

1.14A IDR Transfer Agreement:

An agreement to transfer, subject to the terms of Section 49B of the Tariff, Incremental Deliverability Rights to a party for the purpose of eliminating or reducing the need for Local or Network Upgrades that would otherwise have been the responsibility of the party receiving such rights.

1.14A.01 Incidental Expenses:

Shall mean those expenses incidental to the performance of construction pursuant to an Interconnection Construction Service Agreement, including, but not limited to, the expense of temporary construction power, telecommunications charges, Interconnected Transmission Owner expenses associated with, but not limited to, document preparation, design review, installation,

monitoring, and construction-related operations and maintenance for the Customer Facility and for the Interconnection Facilities.

1.14B Incremental Auction Revenue Rights:

The additional Auction Revenue Rights (as defined in Section 1.3.1A of Schedule 1 of the Operating Agreement), not previously feasible, created by the addition of Incremental Rights-Eligible Required Transmission Enhancements, Merchant Transmission Facilities, or of one or more Customer-Funded Upgrades.

1.14B.01 Incremental Rights-Eligible Required Transmission Enhancements:

Regional Facilities and Necessary Lower Voltage Facilities or Lower Voltage Facilities (as defined in Schedule 12 of the Tariff) and meet one of the following criteria: (1) cost responsibility is assigned to non-contiguous Zones that are not directly electrically connected; or (2) cost responsibility is assigned to Merchant Transmission Providers that are Responsible Customers.

1.14C Incremental Available Transfer Capability Revenue Rights:

The rights to revenues that are derived from incremental Available Transfer Capability created by the addition of Merchant Transmission Facilities or of one of more Customer-Funded Upgrades.

1.14D Incremental Deliverability Rights (IDRs):

The rights to the incremental ability, resulting from the addition of Merchant Transmission Facilities, to inject energy and capacity at a point on the Transmission System, such that the injection satisfies the deliverability requirements of a Capacity Resource. Incremental Deliverability Rights may be obtained by a generator or a Generation Interconnection Customer, pursuant to an IDR Transfer Agreement, to satisfy, in part, the deliverability requirements necessary to obtain Capacity Interconnection Rights.

1.14Da Initial Operation:

The commencement of operation of the Customer Facility and Customer Interconnection Facilities after satisfaction of the conditions of Section 1.4 of Appendix 2 of an Interconnection Service Agreement.

1.14Db Initial Study:

A study of a Completed Application conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) in accordance with Section 19 or Section 32 of the Tariff.

1.14Dc Interconnected Entity:

Either the Interconnection Customer or the Interconnected Transmission Owner; Interconnected Entities shall mean both of them.

1.14D.01 Interconnected Transmission Owner:

The Transmission Owner to whose transmission facilities or distribution facilities Customer Interconnection Facilities are, or as the case may be, a Customer Facility is, being directly connected. When used in an Interconnection Construction Service Agreement, the term may refer to a Transmission Owner whose facilities must be upgraded pursuant to the Facilities Study, but whose facilities are not directly interconnected with those of the Interconnection Customer.

1.14D.02 Interconnection Construction Service Agreement:

The agreement entered into by an Interconnection Customer, Interconnected Transmission Owner and the Transmission Provider pursuant to Subpart B of Part VI of the Tariff and in the form set forth in Attachment P of the Tariff, relating to construction of Attachment Facilities, Network Upgrades, and/or Local Upgrades and coordination of the construction and interconnection of an associated Customer Facility. A separate Interconnection Construction Service Agreement will be executed with each Transmission Owner that is responsible for construction of any Attachment Facilities, Network Upgrades, or Local Upgrades associated with interconnection of a Customer Facility.

1.14E Interconnection Customer:

A Generation Interconnection Customer and/or a Transmission Interconnection Customer.

1.14F Interconnection Facilities:

The Transmission Owner Interconnection Facilities and the Customer Interconnection Facilities.

1.14G Interconnection Feasibility Study:

Either a Generation Interconnection Feasibility Study or Transmission Interconnection Feasibility Study.

1.14G.01 Interconnection Party:

Transmission Provider, Interconnection Customer, or the Interconnected Transmission Owner. Interconnection Parties shall mean all of them.

1.14H Interconnection Request:

A Generation Interconnection Request, a Transmission Interconnection Request and/or an IDR Transfer Agreement.

1.14H.01 Interconnection Service:

The physical and electrical interconnection of the Customer Facility with the Transmission System pursuant to the terms of Part IV and Part VI and the Interconnection Service Agreement entered into pursuant thereto by Interconnection Customer, the Interconnected Transmission Owner and Transmission Provider.

1.14I Interconnection Service Agreement:

An agreement among the Transmission Provider, an Interconnection Customer and an Interconnected Transmission Owner regarding interconnection under Part IV and Part VI of the Tariff.

1.14J Interconnection Studies:

The Interconnection Feasibility Study, the System Impact Study, and the Facilities Study described in Part IV and Part VI of the Tariff.

1.15 Interruption:

A reduction in non-firm transmission service due to economic reasons pursuant to Section 14.7.

1.15A List of Approved Contractors:

A list developed by each Transmission Owner and published in a PJM Manual of (a) contractors that the Transmission Owner considers to be qualified to install or construct new facilities and/or upgrades or modifications to existing facilities on the Transmission Owner's system, provided that such contractors may include, but need not be limited to, contractors that, in addition to providing construction services, also provide design and/or other construction-related services, and (b) manufacturers or vendors of major transmission-related equipment (e.g., high-voltage transformers, transmission line, circuit breakers) whose products the Transmission Owner considers acceptable for installation and use on its system.

1.16 Load Ratio Share:

Ratio of a Transmission Customer's Network Load to the Transmission Provider's total load.

1.17 Load Shedding:

The systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations under Part II or Part III of the Tariff.

1.17A Local Upgrades:

Modifications or additions of facilities to abate any local thermal loading, voltage, short circuit, stability or similar engineering problem caused by the interconnection and delivery of generation to the Transmission System. Local Upgrades shall include:

(i) Direct Connection Local Upgrades which are Local Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) Non-Direct Connection Local Upgrades which are parallel flow Local Upgrades that are not Direct Connection Local Upgrades.

1.18 Long-Term Firm Point-To-Point Transmission Service:

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of one year or more.

1.18A [RESERVED]

1.18A.01 [RESERVED]

1.18A.02 Material Modification:

Any modification to an Interconnection Request that has a material adverse effect on the cost or timing of Interconnection Studies related to, or any Network Upgrades or Local Upgrades needed to accommodate, any Interconnection Request with a later Queue Position.

1.18A.03 Maximum Facility Output:

The maximum (not nominal) net electrical power output in megawatts, specified in the Interconnection Service Agreement, after supply of any parasitic or host facility loads, that a Generation Interconnection Customer's Customer Facility is expected to produce, provided that the specified Maximum Facility Output shall not exceed the output of the proposed Customer Facility that Transmission Provider utilized in the System Impact Study.

1.18B Merchant A.C. Transmission Facilities:

Merchant Transmission Facilities that are alternating current (A.C.) transmission facilities, other than those that are Controllable A.C. Merchant Transmission Facilities.

1.18C Merchant D.C. Transmission Facilities:

Direct current (D.C.) transmission facilities that are interconnected with the Transmission System pursuant to Part IV and Part VI of the Tariff.

1.18D Merchant Network Upgrades:

Merchant A.C. Transmission Facilities that are additions to, or modifications or replacements of, physical facilities of the Interconnected Transmission Owner that, on the date of the pertinent Transmission Interconnection Customer's Interconnection Request, are part of the Transmission System or are included in the Regional Transmission Expansion Plan.

1.18E Merchant Transmission Facilities:

A.C. or D.C. transmission facilities that are interconnected with or added to the Transmission System pursuant to Part IV and Part VI of the Tariff and that are so identified on Attachment T to the Tariff, provided, however, that Merchant Transmission Facilities shall not include (i) any Customer Interconnection Facilities, (ii) any physical facilities of the Transmission System that were in existence on or before March 20, 2003 ; (iii) any expansions or enhancements of the Transmission System that are not identified as Merchant Transmission Facilities in the Regional Transmission Expansion Plan and Attachment T to the Tariff, or (iv) any transmission facilities that are included in the rate base of a public utility and on which a regulated return is earned.

1.18F Merchant Transmission Provider:

An Interconnection Customer that (1) owns, controls, or controls the rights to use the transmission capability of, Merchant D.C. Transmission Facilities and/or Controllable A.C. Merchant Transmission Facilities that connect the Transmission System with another control area, (2) has elected to receive Transmission Injection Rights and Transmission Withdrawal Rights associated with such facility pursuant to Section 36 of the Tariff, and (3) makes (or will make) the transmission capability of such facilities available for use by third parties under terms and conditions approved by the Commission and stated in the Tariff, consistent with Section 38 below.

1.18G Metering Equipment:

All metering equipment installed at the metering points designated in the appropriate appendix to an Interconnection Service Agreement.

1.19 Native Load Customers:

The wholesale and retail power customers of a Transmission Owner on whose behalf the Transmission Owner, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to construct and operate the Transmission Owner's system to meet the reliable electric needs of such customers.

1.19A NERC:

The North American Electric Reliability Council or any successor thereto.

1.19B Neutral Party:

Shall have the meaning provided in Section 9.3(v).

1.20 Network Customer:

An entity receiving transmission service pursuant to the terms of the Transmission Provider's Network Integration Transmission Service under Part III of the Tariff.

1.21 Network Integration Transmission Service:

The transmission service provided under Part III of the Tariff.

1.22 Network Load:

The load that a Network Customer designates for Network Integration Transmission Service under Part III of the Tariff. The Network Customer's Network Load shall include all load (including losses) served by the output of any Network Resources designated by the Network Customer. A Network Customer may elect to designate less than its total load as Network Load but may not designate only part of the load at a discrete Point of Delivery. Where an Eligible Customer has elected not to designate a particular load at discrete points of delivery as Network Load, the Eligible Customer is responsible for making separate arrangements under Part II of the Tariff for any Point-To-Point Transmission Service that may be necessary for such non-designated load.

1.23 Network Operating Agreement:

An executed agreement that contains the terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Network Integration Transmission Service under Part III of the Tariff.

1.24 Network Operating Committee:

A group made up of representatives from the Network Customer(s) and the Transmission Provider established to coordinate operating criteria and other technical considerations required for implementation of Network Integration Transmission Service under Part III of this Tariff.

1.25 Network Resource:

Any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis, except for purposes of fulfilling obligations under a reserve sharing program.

1.26 Network Upgrades:

Modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System. Network Upgrades shall include:

(i) **Direct Connection Network Upgrades** which are Network Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) **Non-Direct Connection Network Upgrades** which are parallel flow Network Upgrades that are not Direct Connection Network Upgrades.

1.26A New PJM Zone(s):

The Zone included in this Tariff, along with applicable Schedules and Attachments, for Commonwealth Edison Company, The Dayton Power and Light Company and the AEP East Operating Companies (Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company and Wheeling Power Company).

1.26B New Service Customers:

All customers that submit an Interconnection Request, a Completed Application, or an Upgrade Request that is pending in the New Services Queue.

1.26C New Service Request:

An Interconnection Request, a Completed Application, or an Upgrade Request.

1.26D New Services Queue:

All Interconnection Requests, Completed Applications, and Upgrade Requests that are received within each three-month period ending on January 31, April 30, July 31, and October 31 of each year shall collectively comprise a New Services Queue.

1.26E New Services Queue Closing Date:

Each January 31, April 30, July 31, and October 31 shall be the Queue Closing Date for the New Services Queue comprised of Interconnection Requests, Completed Applications, and Upgrade Requests received during the three-month period ending on such date.

1.26F Nominal Rated Capability:

The nominal maximum rated capability in megawatts of a Transmission Interconnection Customer's Customer Facility or the nominal increase in transmission capability in megawatts of the Transmission System resulting from the interconnection or addition of a Transmission

Interconnection Customer's Customer Facility, as determined in accordance with pertinent Applicable Standards and specified in the Interconnection Service Agreement.

1.27 Non-Firm Point-To-Point Transmission Service:

Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Section 14.7 under Part II of this Tariff. Non-Firm Point-To-Point Transmission Service is available on a stand-alone basis for periods ranging from one hour to one month.

1.27.01 Non-Firm Sale:

An energy sale for which receipt or delivery may be interrupted for any reason or no reason, without liability on the part of either the buyer or seller.

1.27A Non-Firm Transmission Withdrawal Rights:

The rights to schedule energy withdrawals from a specified point on the Transmission System. Non-Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System to another control area. Withdrawals scheduled using Non-Firm Transmission Withdrawal Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

1.27AA Non-Retail Behind The Meter Generation:

Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, or electric distribution companies to serve load.

1.27B Non-Zone Network Load:

Network Load that is located outside of the PJM Region.

1.27C Office of the Interconnection:

Office of the Interconnection shall have the meaning set forth in the Operating Agreement.

1.28 Open Access Same-Time Information System (OASIS):

The information system and standards of conduct contained in Part 37 and Part 38 of the Commission's regulations and all additional requirements implemented by subsequent Commission orders dealing with OASIS.

1.28A Operating Agreement of the PJM Interconnection, L.L.C. or Operating Agreement:

That agreement dated as of April 1, 1997 and as amended and restated as of June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

1.28A.01 Option to Build:

The option of the New Service Customer to build certain Customer-Funded Upgrades, as set forth in, and subject to the terms of, the Construction Service Agreement.

1.28B Optional Interconnection Study:

A sensitivity analysis of an Interconnection Request based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

1.28C Optional Interconnection Study Agreement:

The form of agreement for preparation of an Optional Interconnection Study, as set forth in Attachment N-3 of the Tariff.

1.29 Part I:

Tariff Definitions and Common Service Provisions contained in Sections 2 through 12.

1.30 Part II:

Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31 Part III:

Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31A Part IV:

Tariff Sections 36 through 112 pertaining to generation or merchant transmission interconnection to the Transmission System in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31B Part V:

Tariff Sections 113 through 122 pertaining to the deactivation of generating units in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31C Part VI:

Tariff Sections 200 through 237 pertaining to the queuing, study, and agreements relating to New Service Requests, and the rights associated with Customer-Funded Upgrades in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.32 Parties:

The Transmission Provider, as administrator of the Tariff, and the Transmission Customer receiving service under the Tariff. PJMSettlement shall be the Counterparty to Transmission Customers.

1.32.01 PJM:

PJM Interconnection, L.L.C.

1.32A PJM Administrative Service:

The services provided by PJM pursuant to Schedule 9 of this Tariff.

1.32B PJM Control Area:

The Control Area that is recognized by NERC as the PJM Control Area.

1.32C PJM Interchange Energy Market:

The regional competitive market administered by the Transmission Provider for the purchase and sale of spot electric energy at wholesale interstate commerce and related services, as more fully set forth in Attachment K – Appendix to the Tariff and Schedule 1 to the Operating Agreement.

1.32D PJM Manuals:

The instructions, rules, procedures and guidelines established by the Transmission Provider for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

1.32E PJM Region:

Shall have the meaning specified in the Operating Agreement.

1.32F [RESERVED]

1.32.F.01 PJMSettlement:

PJM Settlement, Inc. (or its successor).

1.32G [RESERVED]

1.33 Point(s) of Delivery:

Point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.33A Point of Interconnection:

The point or points, shown in the appropriate appendix to the Interconnection Service Agreement and the Interconnection Construction Service Agreement, where the Customer Interconnection Facilities interconnect with the Transmission Owner Interconnection Facilities or the Transmission System.

1.34 Point(s) of Receipt:

Point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.35 Point-To-Point Transmission Service:

The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.

1.36 Power Purchaser:

The entity that is purchasing the capacity and energy to be transmitted under the Tariff.

1.36.01 PRD Curve:

PRD Curve shall have the meaning provided in the Reliability Assurance Agreement.

1.36.02 PRD Provider:

PRD Provider shall have the meaning provided in the Reliability Assurance Agreement.

1.36.03 PRD Reservation Price:

PRD Reservation Price shall have the meaning provided in the Reliability Assurance Agreement.

1.36.04 PRD Substation:

PRD Substation shall have the meaning provided in the Reliability Assurance Agreement.

1.36.05 Pre-Confirmed Application:

An Application that commits the Eligible Customer to execute a Service Agreement upon receipt of notification that the Transmission Provider can provide the requested Transmission Service.

1.36A Pre-Expansion PJM Zones:

Zones included in this Tariff, along with applicable Schedules and Attachments, for certain Transmission Owners – Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power and Light Company, Jersey Central Power and Light Company, Metropolitan Edison Company, PECO Energy Company, Pennsylvania Electric Company, Pennsylvania Power & Light Group, Potomac Electric Power Company, Public Service Electric and Gas Company, Allegheny Power, and Rockland Electric Company.

1.36A.01 Price Responsive Demand:

Price Responsive Demand shall have the meaning provided in the Reliability Assurance Agreement.

1.36A.02 Project Financing:

Shall mean: (a) one or more loans, leases, equity and/or debt financings, together with all modifications, renewals, supplements, substitutions and replacements thereof, the proceeds of which are used to finance or refinance the costs of the Customer Facility, any alteration, expansion or improvement to the Customer Facility, the purchase and sale of the Customer Facility or the operation of the Customer Facility; (b) a power purchase agreement pursuant to which Interconnection Customer's obligations are secured by a mortgage or other lien on the Customer Facility; or (c) loans and/or debt issues secured by the Customer Facility.

1.36A.03 Project Finance Entity:

Shall mean: (a) a holder, trustee or agent for holders, of any component of Project Financing; or (b) any purchaser of capacity and/or energy produced by the Customer Facility to which Interconnection Customer has granted a mortgage or other lien as security for some or all of Interconnection Customer's obligations under the corresponding power purchase agreement.

1.36B Queue Position:

The priority assigned to an Interconnection Request, a Completed Application, or an Upgrade Request pursuant to applicable provisions of Part VI.

1.36C Reasonable Efforts:

With respect to any action required to be made, attempted, or taken by an Interconnection Party or by a Construction Party under Part IV or Part VI of the Tariff, an Interconnection Service

Agreement, or a Construction Service Agreement, such efforts as are timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests.

1.37 Receiving Party:

The entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

1.37A.01 Regional Entity:

Shall have the same meaning specified in the Operating Agreement.

1.37A Regional Transmission Expansion Plan:

The plan prepared by the Office of the Interconnection pursuant to Schedule 6 of the Operating Agreement for the enhancement and expansion of the Transmission System in order to meet the demands for firm transmission service in the PJM Region.

1.38 Regional Transmission Group (RTG):

A voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

1.38.01 Regulation Zone:

Any of those one or more geographic areas, each consisting of a combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

1.38.01A Relevant Electric Retail Regulatory Authority:

An entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

1.38A Reliability Assurance Agreement:

The Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, Rate Schedule No. 44, dated as of May 28, 2009, and as amended from time to time thereafter.

1.38B [RESERVED]

1.38C Required Transmission Enhancements:

Enhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Schedule 6 of the Operating Agreement or (2) any joint planning or coordination agreement between PJM and another region or transmission planning authority set forth in Schedule 12-Appendix B (“Appendix B Agreement”) designates one or more of the Transmission Owner(s) to construct and own or finance. Required Transmission Enhancements shall also include enhancements and expansions of facilities in another region or planning authority that meet the definition of transmission facilities pursuant to FERC’s Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities constructed pursuant to an Appendix B Agreement cost responsibility for which has been assigned at least in part to PJM pursuant to such Appendix B Agreement.

1.38C.01 Reserve Sub-zone:

Any of those geographic areas wholly contained within a Reserve Zone, consisting of a combination of a portion of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

1.38D Reserve Zone:

Any of those geographic areas consisting of a combination of one or more Control Zone(s), as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

1.39 Reserved Capacity:

The maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider’s Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Part II of the Tariff. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

1.39A Schedule of Work:

Shall mean that schedule attached to the Interconnection Construction Service Agreement setting forth the timing of work to be performed by the Constructing Entity pursuant to the Interconnection Construction Service Agreement, based upon the Facilities Study and subject to modification, as required, in accordance with Transmission Provider’s scope change process for interconnection projects set forth in the PJM Manuals.

1.39B Scope of Work:

Shall mean that scope of the work attached as a schedule to the Interconnection Construction Service Agreement and to be performed by the Constructing Entity(ies) pursuant to the Interconnection Construction Service Agreement, provided that such Scope of Work may be

modified, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

1.39C Secondary Systems:

Control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers.

1.39D Security:

The security provided by the New Service Customer pursuant to Section 212.4 or Section 213.4 of the Tariff to secure the New Service Customer's responsibility for Costs under the Interconnection Service Agreement or Upgrade Construction Service Agreement and Section 217 of the Tariff.

1.40 Service Agreement:

The initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

1.41 Service Commencement Date:

The date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Section 15.3 or Section 29.1 under the Tariff.

1.42 Short-Term Firm Point-To-Point Transmission Service:

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of less than one year.

1.42.001 Short-term Project:

"Short-term Project" shall have the same meaning provided in the Operating Agreement.

1.42a Site:

All of the real property, including but not limited to any leased real property and easements, on which the Customer Facility is situated and/or on which the Customer Interconnection Facilities are to be located.

1.42B Small Generation Resource

An Interconnection Customer's device of 20 MW or less for the production and/or storage for later injection of electricity identified in an Interconnection Request, but shall not include the

Interconnection Customer's Interconnection Facilities. This term shall include Energy Storage Resources, as defined in Attachment K of this Agreement, and/or other devices for storage for later injection of energy.

1.42.01 Small Inverter Facility:

An Energy Resource that is a certified small inverter-based facility no larger than 10 kW.

1.42.02 Small Inverter ISA:

An agreement among Transmission Provider, Interconnection Customer, and Interconnected Transmission Owner regarding interconnection of a Small Inverter Facility under section 112B of Part IV of the Tariff.

1.42A [RESERVED]

1.42B [RESERVED]

1.42C [RESERVED]

1.42D State:

The term "state" shall mean a state of the United States or the District of Columbia.

1.42D.01 Switching and Tagging Rules:

The switching and tagging procedures of Interconnected Transmission Owners and Interconnection Customer as they may be amended from time to time.

1.42E [RESERVED]

1.42F System Condition:

A specified condition on the Transmission Provider's system or on a neighboring system, such as a constrained transmission element or flowgate, that may trigger Curtailment of Long-Term Firm Point-to-Point Transmission Service using the curtailment priority pursuant to Section 13.6. Such conditions must be identified in the Transmission Customer's Service Agreement.

1.43 System Impact Study:

An assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a Completed Application, an Interconnection Request or an Upgrade Request, (ii) whether any additional costs may be incurred in order to provide such transmission service or to accommodate an Interconnection Request, and (iii) with respect to an Interconnection Request, an estimated date that an Interconnection Customer's Customer Facility can be interconnected with the Transmission System and an estimate of the Interconnection Customer's cost

responsibility for the interconnection; and (iv) with respect to an Upgrade Request, the estimated cost of the requested system upgrades or expansion, or of the cost of the system upgrades or expansion, necessary to provide the requested incremental rights.

1.43.01 System Protection Facilities:

The equipment required to protect (i) the Transmission System, other delivery systems and/or other generating systems connected to the Transmission System from faults or other electrical disturbance occurring at or on the Customer Facility, and (ii) the Customer Facility from faults or other electrical system disturbance occurring on the Transmission System or on other delivery systems and/or other generating systems to which the Transmission System is directly or indirectly connected. System Protection Facilities shall include such protective and regulating devices as are identified in the Applicable Technical Requirements and Standards or that are required by Applicable Laws and Regulations or other Applicable Standards, or as are otherwise necessary to protect personnel and equipment and to minimize deleterious effects to the Transmission System arising from the Customer Facility.

1.43A Tariff:

This document, the “PJM Open Access Transmission Tariff.”

1.44 Third-Party Sale:

Any sale for resale in interstate commerce to a Power Purchaser that is not designated as part of Network Load under the Network Integration Transmission Service but not including a sale of energy through the PJM Interchange Energy Market established under the PJM Operating Agreement.

1.45 Transmission Customer:

Any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that the Transmission Provider file with the Commission, a proposed unexecuted Service Agreement to receive transmission service under Part II of the Tariff. This term is used in the Part I Common Service Provisions and in Part VI to include customers receiving transmission service under Part II and Part III of this Tariff.

1.45.01 Transmission Facilities:

Transmission Facilities shall have the meaning set forth in the Operating Agreement.

1.45A Transmission Injection Rights:

Capacity Transmission Injection Rights and Energy Transmission Injection Rights.

1.45B Transmission Interconnection Customer:

An entity that submits an Interconnection Request to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region.

1.45C Transmission Interconnection Facilities Study:

A Facilities Study related to a Transmission Interconnection Request.

1.45D Transmission Interconnection Feasibility Study:

A study conducted by the Transmission Provider in accordance with Section 36.2 of the Tariff.

1.45E Transmission Interconnection Request:

A request by a Transmission Interconnection Customer pursuant to Part IV of the Tariff to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of existing Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region.

1.45F Transmission Owner:

Each entity that owns, leases or otherwise has a possessory interest in facilities used for the transmission of electric energy in interstate commerce under the Tariff. The Transmission Owners are listed in Attachment L.

1.45G Transmission Owner Attachment Facilities:

That portion of the Transmission Owner Interconnection Facilities comprised of all Attachment Facilities on the Interconnected Transmission Owner's side of the Point of Interconnection.

1.45H Transmission Owner Interconnection Facilities:

All Interconnection Facilities that are not Customer Interconnection Facilities and that, after the transfer under Section 5.5 of Appendix 2 to Attachment P of the PJM Tariff to the Interconnected Transmission Owner of title to any Transmission Owner Interconnection Facilities that the Interconnection Customer constructed, are owned, controlled, operated and maintained by the Interconnected Transmission Owner on the Interconnected Transmission Owner's side of the Point of Interconnection identified in appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System or interconnected distribution facilities.

1.46 Transmission Provider:

The Transmission Provider shall be the Office of the Interconnection for all purposes, provided that the Transmission Owners will have the responsibility for the following specified activities:

- (a) The Office of the Interconnection shall direct the operation and coordinate the maintenance of the Transmission System, except that the Transmission Owners will continue to direct the operation and maintenance of those transmission facilities that are not listed in the PJM Designated Facilities List contained in the PJM Manual on Transmission Operations;
- (b) Each Transmission Owner shall physically operate and maintain all of the facilities that it owns; and
- (c) When studies conducted by the Office of the Interconnection indicate that enhancements or modifications to the Transmission System are necessary, the Transmission Owners shall have the responsibility, in accordance with the applicable terms of the Tariff, Operating Agreement and/or the Consolidated Transmission Owners Agreement to construct, own, and finance the needed facilities or enhancements or modifications to facilities.

1.47 Transmission Provider's Monthly Transmission System Peak:

The maximum firm usage of the Transmission Provider's Transmission System in a calendar month.

1.48 Transmission Service:

Point-To-Point Transmission Service provided under Part II of the Tariff on a firm and non-firm basis.

1.48A Transmission Service Request:

A request for Firm Point-To-Point Transmission Service or a request for Network Integration Transmission Service.

1.49 Transmission System:

The facilities controlled or operated by the Transmission Provider within the PJM Region that are used to provide transmission service under Part II and Part III of the Tariff.

1.49A Transmission Withdrawal Rights:

Firm Transmission Withdrawal Rights and Non-Firm Transmission Withdrawal Rights.

1.49A.01 Upgrade Construction Service Agreement:

That agreement entered into by a New Service Customer (other than an Interconnection Customer whose project includes generation capability or Merchant Transmission Facilities other than Merchant Network Upgrades), a Transmission Owner, and the Transmission Provider,

pursuant to Subpart B of Part VI of the Tariff, and in the form set forth in Attachment GG of the Tariff.

1.49A.02 Upgrade Customer:

A customer that submits an Upgrade Request.

1.49A.03 Upgrade-Related Rights:

Incremental Auction Revenue Rights, Incremental Available Transfer Capability Revenue Rights, Incremental Deliverability Rights, and Incremental Capacity Transfer Rights (as defined in Section 2.35 of Attachment DD of the Tariff).

1.49A.04 Upgrade Request:

A request pursuant to Section 7.8 of Schedule 1 of the Operating Agreement, submitted in the form prescribed in Attachment EE of the Tariff, for evaluation by the Transmission Provider of the feasibility and estimated costs of, (a) a particular proposed Customer-Funded Upgrade or (b) the Customer-Funded Upgrades that would be needed to provide the Incremented Auction Revenue Rights specified in the request.

1.49B [RESERVED]

1.49C [RESERVED]

1.49D [RESERVED]

1.49E [RESERVED]

1.49F [RESERVED]

1.49G Wholesale Transaction:

As used in Part IV, means any transaction involving the transmission or sale for resale of electricity in interstate commerce that utilizes any portion of the Transmission System.

1.49H Zone:

An area within the PJM Region, as set forth in Attachment J.

1.50 Zone Network Load:

Network Load that is located inside of the area comprised of the PJM Region.

APPENDIX 2

STANDARD TERMS AND CONDITIONS FOR INTERCONNECTIONS

1 Commencement, Term of and Conditions Precedent to Interconnection Service

1.1 Commencement Date:

The effective date of an Interconnection Service Agreement shall be the date provided in Section 4.0 of the Interconnection Service Agreement. Interconnection Service under this Interconnection Service Agreement shall commence upon the satisfaction of the conditions precedent set forth in Section 1.2 below.

1.2 Conditions Precedent:

The following conditions must be satisfied prior to the commencement of Interconnection Service under this Interconnection Service Agreement:

(a) This Interconnection Service Agreement, if filed with FERC, shall have been accepted for filing by the FERC;

(b) All requirements for Initial Operation as specified in Section 1.4 below shall have been met and Initial Operation of the Customer Facility shall have been completed.

(c) Interconnection Customer shall be in compliance with all Applicable Technical Requirements and Standards for interconnection under the Tariff (as determined by the Transmission Provider).

1.3 Term:

This Interconnection Service Agreement shall remain in full force and effect until it is terminated in accordance with Section 16 of this Appendix 2.

1.4 Initial Operation:

The following requirements shall be satisfied prior to Initial Operation of the Customer Facility:

1.4.1 The construction of all Interconnection Facilities necessary for the interconnection of the Customer Facility has been completed;

1.4.2 The Interconnected Transmission Owner has accepted any Interconnection Facilities and/or Merchant Network Upgrades constructed by Interconnection Customer pursuant to the Interconnection Construction Service Agreement;

1.4.3 The Interconnection Customer and the Interconnected Transmission Owner have all necessary systems and personnel in place to allow for parallel operation of their respective facilities;

1.4.4 The Interconnected Transmission Owner has received all applicable documentation for the Interconnection Facilities and/or Merchant Network Upgrades built by the Interconnection Customer, certified as correct, including, but not limited to, access to the field copy of marked-

up drawings reflecting the as-built condition, pre-operation test reports, and instruction books; and

1.4.5 Interconnection Customer shall have received any necessary authorization from Transmission Provider to synchronize with the Transmission System or to energize, as applicable per the determination of Transmission Provider, the Customer Facility and Interconnection Facilities.

1.4A Limited Operation:

If any of the Transmission Owner Interconnection Facilities are not reasonably expected to be completed prior to the Interconnection Customer's planned date of Initial Operation, and provided that the Interconnected Transmission Owner has accepted the Customer Interconnection Facilities pursuant to the Interconnection Construction Service Agreement, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform appropriate power flow or other operating studies on a timely basis to determine the extent to which the Customer Facility and the Customer Interconnection Facilities may operate prior to the completion of the Transmission Owner Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and the Interconnection Service Agreement. In accordance with the results of such studies and subject to such conditions as Transmission Provider determines to be reasonable and appropriate, Transmission Provider shall (a) permit Interconnection Customer to operate the Customer Facility and the Customer Interconnection Facilities, and (b) grant Interconnection Customer limited, interim Interconnection Rights commensurate with the extent to which operation of the Customer Facility is permitted.

1.5 Survival:

The Interconnection Service Agreement shall continue in effect after termination to the extent necessary to provide for final billings and payments; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while the Interconnection Service Agreement was in effect; and to permit each Interconnection Party to have access to the real property, including but not limited to leased property and easements of the other Interconnection Parties pursuant to Section 16 of this Appendix 2 to disconnect, remove or salvage its own facilities and equipment.

2 Interconnection Service

2.1 Scope of Service:

Interconnection Service shall be provided to the Interconnection Customer at the Point of Interconnection (a), in the case of interconnection of the Customer Facility of a Generation Interconnection Customer, up to the Maximum Facility Output, and (b), in the case of interconnection of the Customer Facility of a Transmission Interconnection Customer, up to the Nominal Rated Capability. The location of the Point of Interconnection shall be mutually agreed by the Interconnected Entities, provided, however, that if the Interconnected Entities are unable

to agree on the Point of Interconnection, the Transmission Provider shall determine the Point of Interconnection, provided that Transmission Provider shall not select a Point of Interconnection that would impose excessive costs on either of the Interconnected Entities and shall take material system reliability considerations into account in such selection. Specifications for the Customer Facility and the location of the Point of Interconnection shall be set forth in an appendix to the Interconnection Service Agreement and shall conform to those stated in the Facilities Study.

2.2 Non-Standard Terms:

The standard terms and conditions of this Appendix 2 shall not apply, to such extent as Transmission Provider determines to be reasonably necessary to accommodate such circumstances, in the event that the Interconnection Customer acquires an ownership interest in facilities which, under the standard terms and conditions of the Interconnection Construction Service Agreement would be part of the Transmission Owner Interconnection Facilities. In such circumstances and to the extent determined by Transmission Provider to be reasonably necessary, non-standard terms and conditions mutually agreed upon by all Interconnection Parties shall apply, subject to FERC and any other necessary regulatory acceptance or approval. In addition, a Generation Interconnection Customer that acquires an ownership interest in such facilities shall become, and shall remain for so long as it retains such interest, a signatory to the Consolidated Transmission Owners Agreement.

2.3 No Transmission Services:

The execution of an Interconnection Service Agreement does not constitute a request for transmission service, or entitle Interconnection Customer to receive transmission service, under Part II or Part III of the Tariff. Nor does the execution of an Interconnection Service Agreement obligate the Interconnected Transmission Owner or Transmission Provider to procure, supply or deliver to Interconnection Customer or the Customer Facility any energy, capacity, Ancillary Services or Station Power (and any associated distribution services).

2.4 Use of Distribution Facilities:

To the extent that a Generation Interconnection Customer uses distribution facilities for the purpose of delivering energy to the Transmission System, Interconnection Service under this Tariff shall include the construction and/or use of such distribution facilities. In such cases, to such extent as Transmission Provider determines to be reasonably necessary to accommodate such circumstances, the Interconnection Service Agreement may include non-standard terms and conditions mutually agreed upon by all Interconnection Parties as needed to conform with Applicable Laws and Regulations and Applicable Standards relating to such distribution facilities.

2.5 Election by Behind The Meter Generation:

In the event that a Generation Interconnection Customer's Customer Facility is Behind The Meter Generation, the Generation Interconnection Customer may elect from time to time, subject

to the terms of this section, whether to operate all or a portion of its Customer Facility's generating capacity as a Capacity Resource under the Tariff and the Operating Agreement.

2.5.1 Capacity Resource Election:

The Generation Interconnection Customer may elect to operate all or a portion of its Customer Facility as a Capacity Resource only to the extent that the Interconnection Service Agreement grants Capacity Interconnection Rights. Such an election may include all or any portion of the Customer Facility's capacity for which Capacity Interconnection Rights have been granted.

2.5.2 Timing and Duration of Election:

The Generation Interconnection Customer shall make an initial election under this section no later than 30 days prior to the commencement of Interconnection Service. Thereafter, the Generation Interconnection Customer may make the election authorized by this Section 2.5 only once in each calendar year and must notify Transmission Provider of such an election no later than May 1, and no sooner than March 15, of each year. Each such election shall be effective commencing on June 1 following Transmission Provider's receipt of notice of the election. An election under this Section 2.5 shall remain in effect unless and until the Generation Interconnection Customer modifies or terminates it in a subsequent election made in accordance with the terms of this section.

3 Modification Of Facilities

3.1 General:

Subject to Applicable Laws and Regulations and to any applicable requirements or conditions of the Tariff and the Operating Agreement, either Interconnected Entity may undertake modifications to its facilities. In the event that an Interconnected Entity plans to undertake a modification that reasonably may be expected upon completion to have a permanent material impact on the other Interconnected Entity's facilities, that Interconnected Entity, in accordance with Good Utility Practice, shall provide the other Interconnection Parties with sufficient information regarding such modification, so that the other Interconnection Parties may evaluate the potential impact of such modification prior to commencement of the work. The Interconnected Entity desiring to perform such modification shall provide the relevant drawings, plans, and specifications to the other Interconnection Parties at least ninety days, or such shorter period to which the Interconnection Parties receiving the information may agree (which agreement shall not unreasonably be withheld, conditioned, or delayed), in advance of the beginning of the work. The Interconnection Customer shall notify Transmission Provider and Interconnected Transmission Owner of the proposed modifications and Transmission Provider shall provide, within sixty days of receipt of the relevant drawings and specifications (or within such other time upon which the Interconnection Parties may agree), an estimate of any modifications to the Transmission System that would be necessary to accommodate the proposed modifications by Interconnection Customer and a good faith estimate of the costs thereof.

3.2 Interconnection Request:

This Section 3 shall not apply to any proposed modifications by Interconnection Customer to its facilities for which Interconnection Customer must make an Interconnection Request under the Tariff. In such circumstances, the Interconnection Customer and Transmission Provider shall follow the requirements of Subpart A of Part IV of the Tariff.

3.3 Standards:

Any additions, modifications, or replacements made to an Interconnected Entity's facilities shall be constructed and operated in accordance with Good Utility Practice, Applicable Standards and Applicable Laws and Regulations.

3.4 Modification Costs:

Unless otherwise required by Applicable Laws and Regulations or this Appendix 2 and, with respect to a Transmission Interconnection Customer, subject to the terms of Section 236.2 of the Tariff:

(a) Interconnection Customer shall not be responsible for the costs of any additions, modifications, or replacements that the Interconnected Transmission Owner in its discretion or at the direction of Transmission Provider makes to the Interconnection Facilities or the Transmission System in order to facilitate the interconnection of a third party to the Interconnection Facilities or the Transmission System, or to provide transmission service under the Tariff to a third party.

(b) Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Facilities or the Transmission System that are required, in accord with Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards, in order to accommodate additions, modifications, or replacements made by Interconnection Customer to the Customer Facility or to the Customer Interconnection Facilities.

(c) Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Customer Interconnection Facilities or the Customer Facility that are required, in accord with Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards, in order to accommodate additions, modifications, or replacements that Transmission Provider or the Interconnected Transmission Owner makes to the Transmission System or to the Transmission Owner Interconnection Facilities, but only to the extent that Transmission Provider's or the Interconnected Transmission Owner's changes to the Transmission System or the Transmission Owner Interconnection Facilities are made pursuant to Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards.

4 Operations

4.1 General:

Each Interconnected Entity shall operate, or shall cause operation of, its facilities in a safe and reliable manner in accord with (i) the terms of this Appendix 2; (ii) Applicable Standards; (iii) applicable rules, procedures and protocols set forth in the Tariff and the Operating Agreement, as any or all may be amended from time to time; (iv) Applicable Laws and Regulations, and (v) Good Utility Practice.

4.1.1 Interconnection Customer Drawings:

Within one hundred twenty (120) days after the date of Initial Operation, unless the Interconnection Parties agree on another mutually acceptable deadline, the Interconnection Customer shall deliver to the Transmission Provider and the Interconnected Transmission Owner final, “as-built” drawings, information and documents regarding the Customer Interconnection Facilities, including, as and to the extent applicable: a one-line diagram, a site plan showing the Customer Facility and the Customer Interconnection Facilities, plan and elevation drawings showing the layout of the Customer Interconnection Facilities, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Customer Facility to the step-up transformers and the Customer Interconnection Facilities, and the impedances (determined by factory tests) for the associated step-up transformers and the Customer Facility. As applicable, the Interconnection Customer shall provide Transmission Provider and the Interconnected Transmission Owner specifications for the excitation system, automatic voltage regulator, Customer Facility control and protection settings, transformer tap settings, and communications.

4.2 Operation of Merchant Network Upgrades:

Unless otherwise provided in the Interconnection Service Agreement, the Interconnected Transmission Owner that owns Transmission System facilities to which any Merchant Network Upgrades are connected shall operate such Merchant Network Upgrades (a) on behalf and at the expense of the Interconnection Customer that constructed or caused construction of the pertinent Merchant Network Upgrades and (b) in accordance with this Appendix 2 and with an agreement between the Interconnected Transmission Owner and the Interconnection Customer regarding such operation.

4.3 Interconnection Customer Obligations:

Interconnection Customer shall obtain Transmission Provider's approval prior to either synchronizing with the Transmission System or energizing, as applicable per the determination of Transmission Provider, the Customer Facility or, except in an Emergency Condition, disconnecting the Customer Facility from the Transmission System, and shall coordinate such synchronizations, energizations, and disconnections with the Interconnected Transmission Owner.

4.4 [Reserved.]

4.5 Permits and Rights-of-Way:

Each Interconnected Entity at its own expense shall maintain in full force and effect all permits, licenses, rights-of-way and other authorizations as may be required to maintain the Customer Facility and the Interconnection Facilities that the entity owns, operates and maintains and, upon reasonable request of the other Interconnected Entity, shall provide copies of such permits, licenses, rights-of-way and other authorizations at its own expense to the requesting party.

4.6 No Ancillary Services:

Except as provided in Section 4.7 of this Appendix 2, nothing in this Appendix 2 is intended to obligate the Interconnection Customer to supply Ancillary Services to either Transmission Provider or the Interconnected Transmission Owner.

4.7 Reactive Power

4.7.1 Reactive Power Design Criteria

4.7.1.1 New Facilities:

For all new generating facilities to be interconnected pursuant to the Tariff, other than wind-powered and other non-synchronous generation facilities, the Generation Interconnection Customer shall design its Customer Facility to maintain a composite power delivery at continuous rated power output at a power factor of at least 0.95 leading to 0.90 lagging. For all new wind-powered and other non-synchronous generation facilities, if determined in the system impact study to be required for the safety or reliability of the Transmission System, the Generation Interconnection Customer shall design its Customer Facility with the ability to maintain a composite power delivery at continuous rated power output at a power factor of at least 0.95 leading to 0.95 lagging. For new generation resources of more than 20 MW, other than wind-powered and other non-synchronous generating facilities, the power factor requirement shall be measured at the generator's terminals. For new generation resources of 20 MW or less, and all wind-powered and other non-synchronous generation facilities, the power factor requirement shall be measured at the Point of Interconnection. Any different reactive power design criteria that Transmission Provider determines to be appropriate for a wind-powered or other non-synchronous generation facility shall be stated in the Interconnection Service Agreement. A Transmission Interconnection Customer interconnecting Merchant D.C. Transmission Facilities and/ or Controllable A.C. Merchant Transmission Facilities shall design its Customer Facility to maintain a power factor at the Point of Interconnection of at least 0.95 leading and 0.95 lagging, when the Customer Facility is operating at any level within its approved operating range.

4.7.1.2 Increases in Generating Capacity or Energy Output:

All increases in the capacity or energy output of any generation facility interconnected with the Transmission System, other than wind-powered and other non-synchronous generating facilities, shall be designed with the ability to maintain a composite power delivery at continuous rated

power output at a power factor for all incremental MW of capacity or energy output, of at least 1.0 (unity) to 0.90 lagging. Wind-powered generation facilities and other non-synchronous generation facilities, if determined in the System Impact Study to be required for the safety or reliability of the Transmission System, shall be designed with the ability to maintain a composite power delivery at continuous rated power output at a power factor for all incremental MW of capacity or energy output, of at least 1.0 (unity) to 0.95 lagging. The power factor requirement associated with increases in capacity or energy output of more than 20 MW to synchronous generation facilities interconnected with the Transmission System shall be measured at the generator's terminals. The power factor requirement associated with increases in capacity or energy output of 20 MW or less to synchronous generation facilities and all increases to wind-powered and non-synchronous generation facilities interconnected to the Transmission System shall be measured at the Point of Interconnection.

4.7.2 Obligation to Supply Reactive Power:

Interconnection Customer agrees, as and when so directed by Transmission Provider or when so directed by the Interconnected Transmission Owner acting on behalf or at the direction of Transmission Provider, to operate the Customer Facility to produce reactive power within the design limitations of the Customer Facility pursuant to voltage schedules, reactive power schedules or power factor schedules established by Transmission Provider or, as appropriate, the Interconnected Transmission Owner. Transmission Provider shall maintain oversight over such schedules to ensure that all sources of reactive power in the PJM Region, as applicable, are treated in an equitable and not unduly discriminatory manner. Interconnection Customer agrees that Transmission Provider and the Interconnected Transmission Owner, acting on behalf or at the direction of Transmission Provider, may make changes to the schedules that they respectively establish as necessary to maintain the reliability of the Transmission System.

4.7.3 Deviations from Schedules:

In the event that operation of the Customer Facility of an Interconnection Customer causes the Transmission System or the Interconnected Transmission Owner's facilities to deviate from appropriate voltage schedules and/or reactive power schedules as specified by Transmission Provider or the Interconnected Transmission Owner's operations control center (acting on behalf or at the direction of Transmission Provider), or that otherwise is inconsistent with Good Utility Practice and results in an unreasonable deterioration of the quality of electric service to other customers of Transmission Provider or the Interconnected Transmission Owner, the Interconnection Customer shall, upon discovery of the problem or upon notice from Transmission Provider or the Interconnected Transmission Owner, acting on behalf or at the direction of Transmission Provider, take whatever steps are reasonably necessary to alleviate the situation at its expense, in accord with Good Utility Practice and within the reactive capability of the Customer Facility. In the event that the Interconnection Customer does not alleviate the situation within a reasonable period of time following Transmission Provider's or the Interconnected Transmission Owner's notice thereof, the Interconnected Transmission Owner, with Transmission Provider's approval, upon notice to the Interconnection Customer and at the Interconnection Customer's expense, may take appropriate action, including installation on the Transmission System of power factor correction or other equipment, as is reasonably required,

consistent with Good Utility Practice, to remedy the situation cited in Transmission Provider's or the Interconnected Transmission Owner's notice to the Interconnection Customer under this section.

4.7.4 Payment for Reactive Power:

Any payments to the Interconnection Customer for reactive power shall be in accordance with Schedule 2 of the Tariff.

4.8 Under- and Over-Frequency Conditions:

The Transmission System is designed to automatically activate a load-shed program as required by NERC and each Applicable Regional Entity in the event of an under-frequency system disturbance. A Generation Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Customer Facility as required by NERC and each Applicable Regional Entity to ensure "ride through" capability of the Transmission System. The response of a Generation Interconnection Customer's Customer Facility to frequency deviations of predetermined magnitudes, both under-frequency and over-frequency deviations shall be studied and coordinated with the Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generation Interconnection Customer's Customer Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice.

4.9 Protection and System Quality

4.9.1 System Protection:

Interconnection Customer shall, at its expense, install, operate and maintain such System Protection Facilities as may be required in connection with operation of the Customer Facility and the Customer Interconnection Facilities consistent with Applicable Technical Requirements and Standards. Interconnected Transmission Owner shall install any System Protection Facilities that may be required, as determined by Transmission Provider, on the Transmission Owner Interconnection Facilities or the Transmission System in connection with the operation of the Customer Facility and the Customer Interconnection Facilities. Responsibility for the cost of any System Protection Facilities required on the Transmission Owner Interconnection Facilities or the Transmission System shall be allocated as provided in Section 217 of the Tariff.

4.9.2 Power Quality:

The Customer Facility and Customer Interconnection Facilities shall not cause excessive deviations from the power quality criteria set forth in the Applicable Technical Requirements and Standards.

4.10 Access Rights:

Each Interconnected Entity shall provide the other Interconnected Entity access to areas under its control as reasonably necessary to permit the other Interconnected Entity to perform its obligations under this Appendix 2, including operation and maintenance obligations. An Interconnected Entity that obtains such access shall comply with all safety rules applicable to the area to which access is obtained. Each Interconnected Entity agrees to inform the other Interconnected Entity's representatives of safety rules applicable to an area.

4.11 Switching and Tagging Rules:

The Interconnected Entities shall comply with applicable Switching and Tagging Rules in obtaining clearances for work or for switching operations on equipment. Such Switching and Tagging Rules shall be developed in accordance with OSHA standards codified at 29 C.F.R. Part 1910, or successor standards. Each Interconnected Entity shall provide the other Interconnected Entity a copy of its Switching and Tagging Rules that are applicable to the other Interconnected Entity's activities.

4.12 Communications and Data Protocol:

The Interconnected Entities shall comply with any communications and data protocol that the Transmission Provider may establish.

4.13 Nuclear Generating Facilities:

In the event that the Customer Facility is a nuclear generating facility, the Interconnection Parties shall agree to such non-standard terms and conditions as are reasonably necessary to accommodate the Interconnection Customer's satisfaction of Nuclear Regulatory Commission requirements relating to the safety and reliability of operations of such facilities.

5 Maintenance

5.1 General:

Each Interconnected Entity shall maintain, or shall cause the maintenance of, its facilities in a safe and reliable manner in accord with (i) the terms of this Appendix 2; (ii) Applicable Standards; (iii) applicable rules, procedures and protocols set forth in the Tariff and the Operating Agreement, as any or all may be amended from time to time; (iv) Applicable Laws and Regulations, and (v) Good Utility Practice.

5.2 Maintenance of Merchant Network Upgrades:

Unless otherwise provided in the Interconnection Service Agreement, the Interconnected Transmission Owner that owns Transmission System facilities to which any Merchant Network Upgrades are connected shall maintain such Merchant Network Upgrades (a) on behalf and at the expense of the Interconnection Customer that constructed or caused construction of the pertinent Merchant Network Upgrades and (b) in accordance with this Appendix 2 and with an agreement

between the Interconnected Transmission Owner and the Interconnection Customer regarding such maintenance.

5.3 Outage Authority and Coordination

5.3.1 Coordination:

The Interconnection Parties agree to confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Customer Facility, the Customer Interconnection Facilities and any Attachment Facilities owned by the Interconnected Transmission Owner.

5.3.2 Authority:

Each Interconnected Entity may, in accordance with Good Utility Practice, remove from service its facilities that may affect the other Interconnected Entity's facilities in order to perform maintenance or testing or to install or replace equipment. Except in the event of an Emergency Condition, the Interconnection Customer proposing to remove such facilities from service shall provide prior notice of such activities to the Transmission Provider and the Interconnected Transmission Owner, and the Interconnected Entities shall coordinate all scheduling of planned facility outages with Transmission Provider, in accordance with applicable sections of the Operating Agreement, the PJM Manuals and any other applicable operating guidelines or directives of the Transmission Provider. Subject to the foregoing, the Interconnected Entity scheduling a facility outage shall use Reasonable Efforts to coordinate such outage with the other Interconnected Entity's scheduled outages.

5.3.3 Outages Required for Maintenance:

Subject to any necessary approval by Transmission Provider, each Interconnected Entity shall provide necessary equipment outages to allow the other Interconnected Entity to perform periodic maintenance, repair or replacement of its facilities and such outages shall be provided at mutually agreeable times, unless conditions arise which an Interconnected Entity believes, in accordance with Good Utility Practice, may endanger persons or property.

5.3.4 Rescheduling of Planned Outages:

To the extent so provided by the Tariff, the Operating Agreement, and the PJM Manuals, an Interconnected Entity may seek compensation from Transmission Provider for any costs related to rejection by Transmission Provider of a request of such Interconnected Entity for a planned maintenance outage.

5.3.5 Outage Restoration:

If an outage on an Interconnected Entity's facilities adversely affects the other Interconnected Entity's facilities, the Interconnected Entity that owns or controls the facility that is out of service shall use Reasonable Efforts to restore the facility to service promptly.

5.4 Inspections and Testing:

Each Interconnected Entity shall perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Customer Facility with the Transmission System in a safe and reliable manner. Each Interconnected Entity shall have the right, upon advance written notice, to request reasonable additional testing of an Interconnected Entity's facilities for good cause, as may be in accordance with Good Utility Practice.

5.5 Right to Observe Testing:

Each Interconnected Entity shall notify the other Interconnected Entity in advance of its performance of tests of its portion of the Interconnection Facilities or of any Merchant Network Upgrades. The other Interconnected Entity shall, at its own expense, have the right to observe such testing.

5.6 Secondary Systems:

Each Interconnected Entity agrees to cooperate with the other in the inspection, maintenance, and testing of those Secondary Systems directly affecting the operation of an Interconnected Entity's facilities and equipment which may reasonably be expected to affect the other Interconnected Entity's facilities. Each Interconnected Entity shall provide advance notice to the other Interconnected Entity before undertaking any work on such equipment, especially in electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

5.7 Access Rights:

Each Interconnected Entity shall provide the other Interconnected Entity access to areas under its control as reasonably necessary to permit the other Interconnected Entity to perform its obligations under this Appendix 2, including operation and maintenance obligations. An Interconnected Entity that obtains such access shall comply with all safety rules applicable to the area to which access is obtained. Each Interconnected Entity agrees to inform the other Interconnected Entity's representatives of safety rules applicable to an area.

5.8 Observation of Deficiencies:

If an Interconnection Party observes any Abnormal Condition on, or becomes aware of a lack of scheduled maintenance and testing with respect to, an Interconnection Party's facilities and equipment that might reasonably be expected to adversely affect the observing Interconnection Party's facilities and equipment, the observing Interconnection Party shall provide prompt notice under the circumstances to the appropriate Interconnection Party, and such Interconnection Party shall consider such notice in accordance with Good Utility Practice. Any Interconnection Party's review, inspection, and approval related to the other Interconnection Party's facilities and equipment shall be limited to the purpose of assessing the safety, reliability, protection and

control of the Transmission System and shall not be construed as confirming or endorsing the design of such facilities and equipment, or as a warranty of any type, including safety, durability or reliability thereof. Notwithstanding the foregoing, the observing Interconnection Party shall have no liability whatsoever for failure to give a deficiency notice to the other Interconnection Party and the Interconnected Entity that owns the relevant Interconnection Facilities shall remain fully liable for its failure to determine and correct deficiencies and defects in its facilities and equipment.

6 Emergency Operations

6.1 Obligations:

Subject to Applicable Laws and Regulations, each Interconnection Party shall comply with the Emergency Condition procedures of NERC, the Applicable Regional Entity, Transmission Provider, the Interconnected Transmission Owner and Interconnection Customer.

6.2 Notice:

Each Interconnection Party shall notify the other parties promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect operation of the Customer Facility, the Customer Interconnection Facilities, the Transmission Owner Interconnection Facilities, or the Transmission System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the facilities and/or operation thereof, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

6.3 Immediate Action:

An Interconnection Party becoming aware of an Emergency Condition may take such action, including disconnection of the Customer Facility from the Transmission System, as is reasonable and necessary in accord with Good Utility Practice (i) to prevent, avoid, or mitigate injury or danger to, or loss of, life or property; (ii) to preserve the reliability of, in the case of Interconnection Customer, the Customer Facility, or, in the case of Transmission Provider or the Interconnected Transmission Owner, the Transmission System and interconnected sub-transmission and distribution facilities; or (iii) to expedite restoration of service. Unless, in Interconnection Customer's reasonable judgment, immediate action is required to prevent imminent loss of life or property, Interconnection Customer shall obtain the consent of Transmission Provider and the Interconnected Transmission Owner prior to performing any manual switching operations at the Customer Facility or the Generation Interconnection Facilities. Each Interconnection Party shall use Reasonable Efforts to minimize the effect of its actions during an Emergency Condition on the facilities and operations of the other Interconnection Parties.

6.4 Record-Keeping Obligations:

Each Interconnection Party shall keep and maintain records of actions taken during an Emergency Condition that may reasonably be expected to affect the other parties' facilities and make such records available for audit in accordance with Section 19.3 of this Appendix 2.

7 Safety

7.1 General:

Each Interconnected Entity shall perform all work under this Appendix 2 that may reasonably be expected to affect the other Interconnected Entity in accordance with Good Utility Practice and all Applicable Laws and Regulations pertaining to the safety of persons or property. An Interconnected Entity performing work within the boundaries of the other Interconnected Entity's facilities must abide by the safety rules applicable to the site. Each party agrees to inform the other party's representatives of applicable safety rules that must be obeyed on the premises.

7.2 Environmental Releases:

Each Interconnected Entity shall notify the other Interconnection Parties, first orally and promptly thereafter in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities, related to the Customer Facility or the Interconnection Facilities, any of which may reasonably be expected to affect one or both of the other parties. The notifying party shall (i) provide the notice as soon as possible; (ii) make a good faith effort to provide the notice within twenty-four (24) hours after the party becomes aware of the occurrence; and (iii) promptly furnish to the other parties copies of any publicly available reports filed with any governmental agencies addressing such events.

8 Metering

8.1 General:

Interconnection Customer shall have the right to install, own, operate, test and maintain the necessary Metering Equipment. In the event that Interconnection Customer exercises this option, the Interconnected Transmission Owner shall have the right to install its own check meter(s), at its own expense, at or near the location of the Metering Equipment. If both Interconnection Customer and Interconnected Transmission Owner install meters, the meter installed by the Interconnection Customer shall control unless it is determined by testing to be inaccurate. If the Interconnection Customer does not exercise the option provided by the first sentence of this section, the Interconnected Transmission Owner shall have the option to install, own, operate, test and maintain all necessary Metering Equipment at Interconnection Customer's expense. If the Interconnected Transmission Owner does not exercise this option, the Interconnection Customer shall install, own, operate, test and maintain all necessary Metering Equipment. Transmission Provider shall determine the location where the Metering Equipment shall be installed, after consulting with Interconnection Customer and the Interconnected Transmission Owner. All Metering Equipment shall be tested prior to any operation of the Customer Facility. Power flows to and from the Customer Facility shall be compensated to the Point of

Interconnection, or, upon the mutual agreement of the Interconnected Transmission Owner and the Interconnection Customer, to another location.

8.2 Standards:

All Metering Equipment installed pursuant to this Appendix 2 to be used for billing and payments shall be revenue quality Metering Equipment and shall satisfy applicable ANSI standards and Transmission Provider's metering standards and requirements. Nothing in this Appendix 2 precludes the use of Metering Equipment for any retail services of the Interconnected Transmission Owner provided, however, that in such circumstances Applicable Laws and Regulations shall control.

8.3 Testing of Metering Equipment:

The Interconnected Entity that, pursuant to Section 8.1 of this Appendix 2, owns the Metering Equipment shall operate, maintain, inspect and test all Metering Equipment upon installation and at least once every two years thereafter. Upon reasonable request by the other Interconnected Entity, the owner of the Metering Equipment shall inspect or test the Metering Equipment more frequently than every two years, but in no event more frequently than three times in any 24-month period. The owner of the Metering Equipment shall give reasonable notice to the Interconnection Parties of the time when any inspection or test of the owner's Metering Equipment shall take place, and the other parties may have representatives present at the test or inspection. If Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced in order to provide accurate metering. Where the Interconnected Transmission Owner owns the Metering Equipment, the expense of such adjustment, repair or replacement shall be borne by the Interconnection Customer, except that the Interconnection Customer shall not be responsible for such expenses where the inaccuracy or defect is caused by the Interconnected Transmission Owner. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than one percent from the measurement made by the standard meter used in the test, the owner of the Metering Equipment shall inform Transmission Provider, and the Transmission Provider shall inform the other Interconnected Entity, of the need to correct all measurements made by the inaccurate meter for the period during which the inaccurate measurements were made, if the period can be determined. If the period of inaccurate measurement cannot be determined, the correction shall be for the period immediately preceding the test of the Metering Equipment that is equal to one-half of the time from the date of the last previous test of the Metering Equipment, provided that the period subject to correction shall not exceed nine (9) months.

8.4 Metering Data:

At Interconnection Customer's expense, the metered data shall be telemetered (a) to a location designated by Transmission Provider; (b) to a location designated by the Interconnected Transmission Owner, unless the Interconnected Transmission Owner agrees otherwise; and (c) to a location designated by Interconnection Customer. Data from the Metering Equipment at the Point of Interconnection shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from or to the Customer Facility to the Point of

Interconnection, provided that the Transmission Provider's rules applicable to Station Power shall control with respect to a Generation Interconnection Customer's consumption of Station Power.

8.5 Communications

8.5.1 Interconnection Customer Obligations:

Interconnection Customer shall install and maintain satisfactory operating communications with Transmission Provider's system dispatcher or its other designated representative and with the Interconnected Transmission Owner. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Customer Facility control room through use of the public telephone system. Interconnection Customer also shall provide and maintain backup communication links with both Transmission Provider and Interconnected Transmission Owner for use during abnormal conditions as specified by Transmission Provider and Interconnected Transmission Owner, respectively. Interconnection Customer further shall provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to the Transmission Provider and Interconnected Transmission Owner as necessary to conform with Applicable Technical Requirements and Standards.

8.5.2 Remote Terminal Unit:

Unless otherwise deemed unnecessary by Transmission Provider and Interconnected Transmission Owner, as indicated in the Interconnection Service Agreement, prior to any operation of the Customer Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to the Interconnection Parties, shall be installed by Interconnection Customer, or by the Interconnected Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Provider and Interconnected Transmission Owner through use of a dedicated point-to-point data circuit(s) as indicated in Section 8.5.1 of this Appendix 2. Instantaneous, bi-directional real power and, with respect to a Generation Interconnection Customer's Customer Facility, reactive power flow information, must be telemetered directly to the location(s) specified by Transmission Provider and the Interconnected Transmission Owner.

8.5.3. Phasor Measurement Units (PMUs):

An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). PMUs shall be installed on the Customer Facility low side of the generator step-up transformer, unless it is a non-synchronous generation facility, in which case the PMUs shall be installed on the Customer Facility side of the Point of Interconnection. The PMUs must be capable of performing phasor measurements at a minimum of 30 samples per second which are synchronized via a high-accuracy satellite clock. To the extent Interconnection Customer installs similar quality equipment, such as relays or digital fault recorders, that can collect data at least at the same rate as PMUs and which data is synchronized via a high-accuracy satellite clock, such equipment

would satisfy this requirement. As provided for in the PJM Manuals, an Interconnection Customer shall be required to install and maintain, at its expense, PMU equipment which includes the communication circuit capable of carrying the PMU data to a local data concentrator, and then transporting the information continuously to the Transmission Provider; as well as store the PMU data locally for thirty days. Interconnection Customer shall provide to Transmission Provider all necessary and requested information through the Transmission Provider synchrophasor system, including the following: (a) gross MW and MVAR measured at the Customer Facility side of the generator step-up transformer (or, for a non-synchronous generation facility, to be measured at the Customer Facility side of the Point of Interconnection); (b) generator terminal voltage; (c) generator terminal frequency; and (d) generator field voltage and current, where available. The Transmission Provider will install and provide for the ongoing support and maintenance of the network communications linking the data concentrator to the Transmission Provider. Additional details regarding the requirements and guidelines of PMU data and telecommunication of such data are contained in the PJM Manuals.

9 Force Majeure

9.1 Notice:

An Interconnection Party that is unable to carry out an obligation imposed on it by this Appendix 2 due to Force Majeure shall notify the other parties in writing or by telephone within a reasonable time after the occurrence of the cause relied on.

9.2 Duration of Force Majeure:

An Interconnection Party shall not be responsible, or considered to be in Breach or Default under this Interconnection Service Agreement, for any non-performance, any interruption or failure of service, deficiency in the quality or quantity of service, or any other failure to perform any obligation hereunder to the extent that such failure or deficiency is due to Force Majeure. An Interconnection Party shall be excused from whatever performance is affected only for the duration of the Force Majeure and while the Interconnection Party exercises Reasonable Efforts to alleviate such situation. As soon as the non-performing Interconnection Party is able to resume performance of its obligations excused because of the occurrence of Force Majeure, such Interconnection Party shall resume performance and give prompt notice thereof to the other parties.

9.3 Obligation to Make Payments:

Any Interconnection Party's obligation to make payments for services shall not be suspended by Force Majeure.

10 Charges

10.1 Specified Charges:

If and to the extent required by the Interconnected Transmission Owner, after the Initial Operation of the Customer Facility, Interconnection Customer shall pay one or more of the types of recurring charges described in this section to compensate the Interconnected Transmission Owner for costs incurred in performing certain of its obligations under this Appendix 2. All such charges shall be stated in Schedule E of the Interconnection Service Agreement. Interconnected Transmission Owner shall provide Transmission Provider and Interconnection Customer with appropriate cost data, schedules and/or written testimony in support of any charges under this section in such manner and at such time as to allow Transmission Provider to include such materials in its filing of the Interconnection Service Agreement with the FERC. Transmission Provider will deliver a copy of such filing to Interconnection Customer. Permissible charges under this section may include:

(a) Administration Charge — Any such charge may recover only the costs and expenses incurred by the Interconnected Transmission Owner in connection with administrative obligations such as the preparation of bills, the processing of Customer Facility-specific data on energy delivered at the Point of Interconnection and costs incurred in similar types of administrative processes related to Interconnection Customer's Interconnection Service. An Administration Charge shall not be permitted to the extent that the Interconnected Transmission Owner's other charges to the Interconnection Customer under the same Interconnection Service Agreement include an allocation of Interconnected Transmission Owner's administrative and general expenses and/or other corporate overhead costs.

(b) Metering Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, and carrying or capital replacement charges for any Metering Equipment that is owned by the Interconnected Transmission Owner.

(c) Telemetry Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, and carrying or capital replacement charges for any telemetry equipment that is owned by the Interconnected Transmission Owner and that is used exclusively in conjunction with Interconnection Service for the Interconnection Customer.

(d) Customer Facility Operations and Maintenance Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, modifications, taxes and carrying or capital replacement charges for Attachment Facilities related to the Interconnection Customer's Interconnection Service and that are owned by the Interconnected Transmission Owner, provided that

(i) any such charge shall exclude costs and expenses associated with Transmission Owner Interconnection Facilities owned by the Interconnected Transmission Owner that are radial line facilities that serve load in addition to an Interconnection Customer; and

(ii) except as otherwise provided by Applicable Laws and Regulations, any such charge may include only an allocated share, derived in accordance with the allocations contained in the Facilities Study, of costs and expenses associated with Transmission Owner Interconnection Facilities owned by the Interconnected Transmission Owner that are radial line facilities that serve more than one Interconnection Customer. At the discretion of the affected Interconnected Entities, a Customer Facility Operations and Maintenance Charge authorized under this section may apply on a per-incident basis or on a monthly or other periodic basis.

(e) Other Charges — Any other charges applicable to the Interconnection Customer, as mutually agreed upon by the Interconnection Customer and the Interconnected Transmission Owner and as accepted by the FERC as part of an Interconnection Service Agreement.

10.2 FERC Filings:

To the extent required by law or regulation, each Interconnection Party shall seek FERC acceptance or approval of its respective charges or the methodology for the calculation of such charges.

11 Security, Billing And Payments

11.1 Recurring Charges Pursuant to Section 10:

The following provisions shall apply with respect to recurring charges applicable to Interconnection Service after Initial Operation of the Customer Facility pursuant to Section 10 of this Appendix 2.

11.1.1 General:

Except as, and to the extent, otherwise provided in the Interconnection Service Agreement, billing and payment of any recurring charges applicable to Interconnection Service after Initial Operation of the Customer Facility pursuant to Section 10 of this Appendix 2 shall be in accordance with Section 7 of the Tariff. The Interconnected Transmission Owner shall provide Transmission Provider with all necessary information and supporting data that Transmission Provider may reasonably require to administer billing for and payment of applicable charges under this Appendix 2. Transmission Provider shall remit to the Interconnected Transmission Owner revenues received in payment of Interconnected Transmission Owner's charges to Interconnection Customer under this Appendix 2 upon Transmission Provider's receipt of such revenues. At Transmission Provider's reasonable discretion, charges to Interconnection Customer and remittances to Interconnected Transmission Owner under this Appendix 2 may be netted against other amounts owed by or to such parties under the Tariff.

11.1.2 Billing Disputes:

In the event of a billing dispute between Transmission Provider and Interconnection Customer, Transmission Provider shall continue to provide interconnection service under this Appendix 2 as long as Interconnection Customer (i) continues to make all payments not in dispute, and (ii)

pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider shall so inform the Interconnection Parties and may provide notice to Interconnection Customer of a Breach pursuant to Section 15 of this Appendix 2. Within thirty days after the resolution of the dispute, the Interconnection Party that owes money to the other Interconnection Party shall pay the amount due with interest calculated in accord with Section 11.4.

11.2 Costs for Transmission Owner Interconnection Facilities and/or Merchant Network Upgrades:

The following provisions shall apply with respect to charges for the Costs of the Interconnected Transmission Owner for which the Interconnection Customer is responsible.

11.2.1 Adjustments to Security:

The Security provided by Interconnection Customer at or before execution of the Interconnection Service Agreement (a) shall be reduced as portions of the work on required Local Upgrades and/or Network Upgrades is completed, and/or (b) shall be increased or decreased as required to reflect adjustments to Interconnection Customer's cost responsibility, as determined in accordance with Section 217, to correspond with changes in the Scope of Work developed in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

11.2.2 Invoice:

The Interconnected Transmission Owner shall provide Transmission Provider a quarterly statement of the Interconnected Transmission Owner's scheduled expenditures during the next three months for, as applicable (a) the design, engineering and construction of, and/or for other charges related to, construction of the Interconnection Facilities and/or Merchant Network Upgrades for which the Interconnected Transmission Owner is responsible under the Interconnection Service Agreement and the Interconnection Construction Service Agreement, or (b) in the event that the Interconnection Customer exercises the Option to Build pursuant to Section 3.2.3.1 of Appendix 2 of the form of Interconnection Construction Service Agreement (set forth in Attachment P to the Tariff), for the Transmission Owner's Costs associated with the Interconnection Customer's building Attachment Facilities, Local Upgrades, and Network Upgrades (including both Direct Connection Network Upgrades, Direct Connection Local Upgrades, Non-Direct Connection Network Upgrades and Non-Direct Connection Local Upgrades), including but not limited to Costs for tie-in work and Cancellation Costs. Provided, however, such Transmission Owner Costs may include oversight costs (i.e. costs incurred by the Transmission Owner when engaging in oversight activities to satisfy itself that the Interconnection Customer is complying with the Transmission Owner's standards and specifications for the construction of facilities) only if the Transmission Owner and the Interconnection Customer mutually agree to the inclusion of such costs under the Option to Build pursuant to the provisions of Section 3.3.3.1 of Appendix 2 of the form of Interconnection

Construction Service Agreement (set forth in Attachment P to the Tariff). Transmission Provider shall bill Interconnection Customer on behalf of the Interconnected Transmission Owner, for the Interconnected Transmission Owner's expected Costs during the subsequent three months. Interconnection Customer shall pay each bill within twenty (20) days after receipt thereof. Upon receipt of each of Interconnection Customer's payments of such bills, Transmission Provider shall reimburse the Interconnected Transmission Owner. Interconnection Customer may request that the Transmission Provider provide a quarterly cost reconciliation. Such a quarterly cost reconciliation will have a one-quarter lag, e.g., reconciliation of costs for the first calendar quarter of work will be provided at the start of the third calendar quarter of work, provided, however, that Section 11.2.3 of this Appendix 2 shall govern the timing of the final cost reconciliation upon completion of the work.

11.2.3 Final Invoice:

Within 120 days after the Interconnected Transmission Owner completes construction and installation of the Interconnection Facilities and/or Merchant Network Upgrades for which the Interconnected Transmission Owner is responsible under the Interconnection Service Agreement and the Interconnection Construction Service Agreement, Transmission Provider shall provide Interconnection Customer with an accounting of, and the appropriate Construction Party shall make any payment to the other that is necessary to resolve, any difference between (a) Interconnection Customer's responsibility under the Tariff for the actual Cost of such facilities, and (b) Interconnection Customer's previous aggregate payments to Transmission Provider for the Costs of such facilities. Notwithstanding the foregoing, however, Transmission Provider shall not be obligated to make any payment to either the Interconnection Customer or the Interconnected Transmission Owner that the preceding sentence requires it to make unless and until the Transmission Provider has received the payment that it is required to refund from the Construction Party owing the payment.

11.2.4 Disputes:

In the event of a billing dispute between any of the Construction Parties, Transmission Provider and the Interconnected Transmission Owner shall continue to perform their respective obligations pursuant to this Interconnection Service Agreement and any related Interconnection Construction Service Agreements so long as (a) Interconnection Customer continues to make all payments not in dispute, and (b) the Security held by the Transmission Provider while the dispute is pending exceeds the amount in dispute, or (c) Interconnection Customer pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet any of these requirements, then Transmission Provider shall so inform the other Construction Parties and Transmission Provider or the Interconnected Transmission Owner may provide notice to Interconnection Customer of a Breach pursuant to Section 15 of this Appendix 2.

11.3 No Waiver:

Payment of an invoice shall not relieve Interconnection Customer from any other responsibilities or obligations it has under this Appendix 2, nor shall such payment constitute a waiver of any claims arising hereunder.

11.4 Interest:

Interest on any unpaid amounts shall be calculated in accordance with the methodology specified for interest on refunds in the FERC's regulations at 18 C.F.R. § 35.19a(a)(2)(iii). Interest on delinquent amounts shall be calculated from the due date of the bill to the date of payment.

12.0 Assignment

12.1 Assignment with Prior Consent:

Except as provided in Section 12.2 to this Appendix 2, no Interconnection Party shall assign its rights or delegate its duties, or any part of such rights or duties, under the Interconnection Service Agreement without the written consent of the other Interconnection Parties, which consent shall not be unreasonably withheld, conditioned, or delayed. Any such assignment or delegation made without such written consent shall be null and void. An Interconnection Party may make an assignment in connection with the sale, merger, or transfer of a substantial portion or all of its properties including the Interconnection Facilities which it owns, so long as the assignee in such a sale, merger, or transfer assumes in writing all rights, duties and obligations arising under this Interconnection Service Agreement. In addition, the Interconnected Transmission Owner shall be entitled, subject to Applicable Laws and Regulations, to assign the Interconnection Service Agreement to any Affiliate or successor that owns and operates all or a substantial portion of the Interconnected Transmission Owner's transmission facilities.

12.2 Assignment Without Prior Consent

12.2.1 Assignment to Owners:

Interconnection Customer may assign the Interconnection Service Agreement without the Interconnected Transmission Owner's or Transmission Provider's prior consent to any Affiliate or person that purchases or otherwise acquires, directly or indirectly, all or substantially all of the Customer Facility and the Customer Interconnection Facilities, provided that prior to the effective date of any such assignment, the assignee shall demonstrate that, as of the effective date of the assignment, the assignee has the technical and operational competence to comply with the requirements of this Interconnection Service Agreement and assumes in a writing provided to the Interconnected Transmission Owner and Transmission Provider all rights, duties, and obligations of Interconnection Customer arising under this Interconnection Service Agreement. However, any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Transmission Provider, such consent not to be unreasonably withheld, conditioned or delayed.

12.2.2 Assignment to Lenders:

Interconnection Customer may, without the consent of the Transmission Provider or the Interconnected Transmission Owner, assign the Interconnection Service Agreement to any Project Finance Entity(ies), provided that such assignment does not alter or diminish Interconnection Customer's duties and obligations under this Interconnection Service Agreement. If Interconnection Customer provides the Interconnected Transmission Owner with notice of an assignment to any Project Finance Entity(ies) and identifies such Project Finance Entities as contacts for notice purposes pursuant to Section 21 of this Appendix 2, the Transmission Provider or Interconnected Transmission Owner shall provide notice and reasonable opportunity for such entity(ies) to cure any Breach under this Interconnection Service Agreement in accordance with this Interconnection Service Agreement. Transmission Provider or Interconnected Transmission Owner shall, if requested by such lenders, provide such customary and reasonable documents, including consents to assignment, as may be reasonably requested with respect to the assignment and status of the Interconnection Service Agreement, provided that such documents do not alter or diminish the rights of the Transmission Provider or Interconnected Transmission Owner under this Interconnection Service Agreement, except with respect to providing notice of Breach to a Project Finance Entity. Upon presentation of the Transmission Provider and/or the Interconnected Transmission Owner's invoice therefor, Interconnection Customer shall pay the Transmission Provider and/or the Interconnected Transmission Owner's reasonable documented cost of providing such documents and certificates. Any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Interconnected Transmission Owner and Transmission Provider.

12.3 Successors and Assigns:

This Interconnection Service Agreement and all of its provisions are binding upon, and inure to the benefit of, the Interconnection Parties and their respective successors and permitted assigns.

13 Insurance

13.1 Required Coverages For Generation Resources Of More Than 20 Megawatts or Merchant Transmission Facilities:

Each Interconnected Entity shall maintain insurance as described in paragraphs A through E below. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Failure to maintain required insurance shall be a Breach of the Interconnection Service Agreement.

A. Workers Compensation insurance with statutory limits, as required by the state and/or jurisdiction in which the work is to be performed, and employer's liability insurance with limits of not less than one million dollars (\$1,000,000.00).

B. Commercial General Liability Insurance and/or Excess Liability Insurance covering liability arising out of premises, operations, personal injury, advertising, products and completed operations coverage, independent contractors coverage, liability assumed under an

insured contract, coverage for pollution to the extent normally available and punitive damages to the extent allowable under applicable law, with limits of not less than one million dollars (\$1,000,000) per occurrence/one million dollars (\$1,000,000) general aggregate/one million dollars (\$1,000,000) products and completed operations aggregate.

C. Business/Commercial Automobile Liability Insurance for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers designed for travel on public roads, with a minimum, combined single limit of one million dollars (\$1,000,000) each accident for bodily injury, including death, and property damage.

D. Excess and/or Umbrella Liability Insurance with a limit of liability of not less than twenty million dollars (\$20,000,000.00) per occurrence. These limits apply in excess of the employer's liability, commercial general liability and business/commercial automobile liability coverages described above. This requirement can be met alone or via a combination of primary, excess and/or umbrella insurance.

E. Professional Liability Insurance providing errors, omissions and/or malpractice coverage in the amount of five million dollars (\$5,000,000) per occurrence/aggregate. Coverage shall be provided for the Interconnected Entity's duties, responsibilities and performance outlined in this Appendix 2, the Interconnection Service Agreement, and if applicable, the Interconnection Construction Service Agreement.

An Interconnected Entity may meet the Professional Liability Insurance requirements by requiring third-party contractors, designers, or engineers, or other parties that are responsible for design work associated with the transmission facilities or Interconnection Facilities necessary for the interconnection to procure professional liability insurance in the amounts and upon the terms prescribed by this section 13.1(E), and providing evidence of such insurance to the other Interconnected Entity. Such insurance shall be procured from companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Nothing in this section relieves the Interconnected Entity from complying with the insurance requirements. In the event that the policies of the designers, engineers, or other parties used to satisfy the Interconnected Entity's insurance obligations under this section become invalid for any reason, including but not limited to, (i) the policy(ies) lapsing or otherwise terminating or expiring; (ii) the coverage limits of such policy(ies) are decreased; or (iii) the policy(ies) do not comply with the terms and conditions of the Tariff; Interconnected Entity shall be required to procure insurance sufficient to meet the requirements of this section, such that there is no lapse in insurance coverage. Notwithstanding the foregoing, in the event an Interconnected Entity will not design or construct or cause to design or construct any new transmission facilities or Interconnection Facilities, Transmission Provider, in its discretion, may waive the requirement that an Interconnected Entity maintain the Professional Liability Insurance pursuant to this section.

13.1A. Required Coverages For Generation Resources Of 20 Megawatts Or Less:

Each Interconnected Entity shall maintain the types of insurance as described in section 13.1 paragraphs A through E in an amount sufficient to insure against all reasonably foreseeable

direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. Additional insurance may be required by the Interconnection Customer, as a function of owning and operating a generating facility. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Failure to maintain required insurance shall be a Breach of the Interconnection Service Agreement.

13.2 Additional Insureds:

The Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability policies procured by each Interconnected Entity (the "Insuring Interconnected Entity") shall include each other Interconnection Party (the "Insured Interconnection Party"), and its respective officers, agents and employees as additional insureds, providing all standard coverages and covering liability of the Insured Interconnection Party arising out of bodily injury and/or property damage (including loss of use) in any way connected with the operations, performance, or lack of performance under this Interconnection Service Agreement.

13.3 Other Required Terms:

The above-mentioned insurance policies (except workers' compensation) shall provide the following:

(a) Each policy shall contain provisions that specify that it is primary and non contributory for any liability arising out of that party's negligence, and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Insuring Interconnected Entity shall be responsible for its respective deductibles or retentions.

(b) If any coverage is written on a Claims First Made Basis, continuous coverage shall be maintained or an extended discovery period will be exercised for a period of not less than two (2) years after termination of the Interconnection Service Agreement.

(c) Provide for a waiver of all rights of subrogation which the Insuring Interconnected Entity's insurance carrier might exercise against the Insured Interconnection Party.

13.3A No Limitation of Liability:

The requirements contained herein as to the types and limits of all insurance to be maintained by the Interconnected Entities are not intended to and shall not in any manner, limit or qualify the

liabilities and obligations assumed by the Interconnection Parties under the Interconnection Service Agreement.

13.4 Self-Insurance:

Notwithstanding the foregoing, each Interconnected Entity may self-insure to meet the minimum insurance requirements of this Section 13 of this Appendix 2 to the extent it maintains a self-insurance program, provided that such Interconnected Entity's senior secured debt is rated at investment grade or better by Standard & Poor's and its self-insurance program meets the minimum insurance requirements of this Section 13. For any period of time that an Interconnected Entity's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under this Section 13. In the event that an Interconnected Entity is permitted to self-insure pursuant to this section, it shall notify the other Interconnection Parties that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Section 13.5 of this Appendix 2.

13.5 Notices; Certificates of Insurance:

All policies of insurance shall provide for thirty days prior written notice of cancellation or material adverse change. If the policies of insurance do not or cannot be endorsed to provide thirty days prior notice of cancellation or material adverse change, each Interconnected Entity shall provide the other Interconnected Entities with thirty days prior written notice of cancellation or material adverse change to any of the insurance required in this agreement. Each Interconnected Entity shall provide the other with certificates of insurance prior to Initial Operation of the Customer Facility and thereafter at such time intervals as they shall mutually agree upon, provided that such interval shall not be less than one year. All certificates of insurance shall indicate that the certificate holder is included as an additional insured under the Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability coverages, and that this insurance is primary with a waiver of subrogation included in favor of the other Interconnected Entities.

13.6 Subcontractor Insurance:

In accord with Good Utility Practice, each Interconnected Entity shall require each of its subcontractors to maintain and provide evidence of insurance coverage of types, and in amounts, commensurate with the risks associated with the services provided by the subcontractor. Bonding of contractors or subcontractors shall be at the hiring Interconnected Entity's discretion, but regardless of bonding, the hiring principal shall be responsible for the performance or non-performance of any contractor or subcontractor it hires.

13.7 Reporting Incidents

The Interconnection Parties shall report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of the Interconnection Service Agreement.

14 Indemnity

14.1 Indemnity:

Each Interconnection Party shall indemnify and hold harmless the other Interconnection Parties, and the other Interconnection Parties' officers, shareholders, stakeholders, members, managers, representatives, directors, agents and employees, and Affiliates, from and against any and all loss, liability, damage, cost or expense to third parties, including damage and liability for bodily injury to or death of persons, or damage to property or persons (including reasonable attorneys' fees and expenses, litigation costs, consultant fees, investigation fees, sums paid in settlements of claims, penalties or fines imposed under Applicable Laws and Regulations, and any such fees and expenses incurred in enforcing this indemnity or collecting any sums due hereunder) (collectively, "Loss") to the extent arising out of, in connection with, or resulting from (i) the indemnifying Interconnection Party's breach of any of the representations or warranties made in, or failure of the indemnifying Interconnection Party or any of its subcontractors to perform any of its obligations under, this Interconnection Service Agreement (including Appendix 2), or (ii) the negligence or willful misconduct of the indemnifying Interconnection Party or its contractors; provided, however, that no Interconnection Party shall have any indemnification obligations under this Section 14.1 in respect of any Loss to the extent the Loss results from the negligence or willful misconduct of the Interconnection Party seeking indemnity.

14.2 Indemnity Procedures:

Promptly after receipt by a Person entitled to indemnity ("Indemnified Person") of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Section 14.1 may apply, the Indemnified Person shall notify the indemnifying Interconnection Party of such fact. Any failure of or delay in such notification shall not affect an Interconnection Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Interconnection Party. The Indemnified Person shall cooperate with the indemnifying Interconnection Party with respect to the matter for which indemnification is claimed. The indemnifying Interconnection Party shall have the right to assume the defense thereof with counsel designated by such indemnifying Interconnection Party and reasonably satisfactory to the Indemnified Person. If the defendants in any such action include one or more Indemnified Persons and the indemnifying Interconnection Party and if the Indemnified Person reasonably concludes that there may be legal defenses available to it and/or other Indemnified Persons which are different from or additional to those available to the indemnifying Interconnection Party, the Indemnified Person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the indemnifying Interconnection Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Person or Indemnified Persons having such differing or additional legal defenses. The Indemnified Person shall be entitled, at its expense, to participate in any action, suit or

proceeding, the defense of which has been assumed by the indemnifying Interconnection Party. Notwithstanding the foregoing, the indemnifying Interconnection Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Person, or there exists a conflict or adversity of interest between the Indemnified Person and the indemnifying Interconnection Party, in such event the indemnifying Interconnection Party shall pay the reasonable expenses of the Indemnified Person, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Person, which shall not be unreasonably withheld, conditioned or delayed.

14.3 Indemnified Person:

If an Indemnified Person is entitled to indemnification under this Section 14 as a result of a claim by a third party, and the indemnifying Interconnection Party fails, after notice and reasonable opportunity to proceed under Section 14.2 of this Appendix 2, to assume the defense of such claim, such Indemnified Person may at the expense of the indemnifying Interconnection Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

14.4 Amount Owing:

If an indemnifying Interconnection Party is obligated to indemnify and hold any Indemnified Person harmless under this Section 14, the amount owing to the Indemnified Person shall be the amount of such Indemnified Person's actual Loss, net of any insurance or other recovery.

14.5 Limitation on Damages:

Except as otherwise provided in this Section 14, the liability of an Interconnection Party under this Appendix 2 shall be limited to direct actual damages, and all other damages at law are waived. Under no circumstances shall any Interconnection Party or its Affiliates, directors, officers, employees and agents, or any of them, be liable to another Interconnection Party, whether in tort, contract or other basis in law or equity for any special, indirect punitive, exemplary or consequential damages, including lost profits. The limitations on damages specified in this Section 14.5 are without regard to the cause or causes related thereto, including the negligence of any Interconnection Party, whether such negligence be sole, joint or concurrent, or active or passive. This limitation on damages shall not affect any Interconnection Party's rights to obtain equitable relief as otherwise provided in this Appendix 2. The provisions of this Section 14.5 shall survive the termination or expiration of the Interconnection Service Agreement.

14.6 Limitation of Liability in Event of Breach:

An Interconnection Party ("Breaching Party") shall have no liability hereunder to the other Interconnection Parties, and the other Interconnection Parties hereby release the Breaching Party, for all claims or damages that either of them incurs that are associated with any interruption in the availability of the Customer Facility, Interconnection Facilities, Transmission System or

Interconnection Service or damages to an Interconnection Party's facilities, except to the extent such interruption or damage is caused by the Breaching Party's gross negligence or willful misconduct in the performance of its obligations under this Interconnection Service Agreement (including Appendix 2).

14.7 Limited Liability in Emergency Conditions:

Except as otherwise provided in the Tariff or the Operating Agreement, no Interconnection Party shall be liable to any other Interconnection Party for any action that it takes in responding to an Emergency Condition, so long as such action is made in good faith, is consistent with Good Utility Practice and is not contrary to the directives of the Transmission Provider or of the Interconnected Transmission Owner with respect to such Emergency Condition. Notwithstanding the above, Interconnection Customer shall be liable in the event that it fails to comply with any instructions of Transmission Provider or the Interconnected Transmission Owner related to an Emergency Condition.

15 Breach, Cure And Default

15.1 Breach:

A Breach of this Interconnection Service Agreement shall include:

- (a) The failure to pay any amount when due;
- (b) The failure to comply with any material term or condition of this Appendix 2 or of the other portions of the Interconnection Service Agreement, including but not limited to any material breach of a representation, warranty or covenant (other than in subsections (a) and (c)-(e) of this Section) made in this Appendix 2;
- (c) Assignment of the Interconnection Service Agreement in a manner inconsistent with its terms;
- (d) Failure of an Interconnection Party to provide access rights, or an Interconnection Party's attempt to revoke or terminate access rights, that are provided under this Appendix 2; or
- (e) Failure of an Interconnection Party to provide information or data required to be provided under this Appendix 2 to another Interconnection Party for such other Interconnection Party to satisfy its obligations under this Appendix 2.

15.2 Continued Operation:

In the event of a Breach or Default by either Interconnected Entity, and subject to termination of the Interconnection Service Agreement under Section 16 of this Appendix 2, the Interconnected Entities shall continue to operate and maintain, as applicable, such DC power systems, protection and Metering Equipment, telemetering equipment, SCADA equipment, transformers, Secondary Systems, communications equipment, building facilities, software, documentation, structural

components, and other facilities and appurtenances that are reasonably necessary for Transmission Provider and the Interconnected Transmission Owner to operate and maintain the Transmission System and the Transmission Owner Interconnection Facilities and for Interconnection Customer to operate and maintain the Customer Facility and the Customer Interconnection Facilities, in a safe and reliable manner.

15.3 Notice of Breach:

An Interconnection Party not in Breach shall give written notice of an event of Breach to the Breaching Party, to Transmission Provider and to other persons that the Breaching Party identifies in writing to the other Interconnection Party in advance. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach. In the event of a Breach by Interconnection Customer, Transmission Provider and the Interconnected Transmission Owner agree to provide notice of such Breach, at the same time and in the same manner as its notice to Interconnection Customer, to any Project Finance Entity provided that the Interconnection Customer has provided the notifying Interconnection Party with notice of an assignment to such Project Finance Entity(ies) and identifies such Project Finance Entity(ies) as contacts for notice purposes pursuant to Section 21 of this Appendix 2.

15.4 Cure and Default:

An Interconnection Party that commits a Breach and does not take steps to cure the Breach pursuant to this Section 15.4 is in Default of this Appendix 2 and of the Interconnection Service Agreement.

15.4.1 Cure of Breach:

Except for the event of Breach set forth in Section 15.1(a) above, the Breaching Interconnection Party (a) may cure the Breach within thirty days from the receipt of such notice; or (b) if the Breach cannot be cured within thirty (30) days, may commence in good faith all steps that are reasonable and appropriate to cure the Breach within such thirty day time period and thereafter diligently pursue such action to completion. In an event of Breach set forth in Section 15.1(a), the Breaching Interconnection Party may cure the Breach within five (5) days from the receipt of notice of the Breach.

15.5 Right to Compel Performance:

Notwithstanding the foregoing, upon the occurrence of an event of Default, a non-Defaulting Interconnection Party shall be entitled to (a) commence an action to require the Defaulting Interconnection Party to remedy such Default and specifically perform its duties and obligations hereunder in accordance with the terms and conditions hereof, (b) withhold payments, (c) suspend performance hereunder, and (d) exercise such other rights and remedies as it may have in equity or at law; provided, however, that the Transmission Provider shall not terminate the Interconnection Service Agreement due to the failure of Interconnection Customer to make a

payment hereunder unless such failure could reasonably be expected to have a material adverse effect on the Interconnected Transmission Owner.

15.6 Remedies Cumulative:

Subject to Section 20.1, no remedy conferred by any provision of this Appendix 2 is intended to be exclusive of any other remedy and each and every remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise. The election of any one or more remedies shall not constitute a waiver of the right to pursue other available remedies.

16 Termination

16.1 Termination:

This Interconnection Service Agreement and Interconnection Service under this Interconnection Service Agreement may be terminated by the following means:

16.1.1 By Mutual Consent:

Interconnection Service may be terminated as of the date on which the Interconnection Parties mutually agree to terminate the Interconnection Service Agreement.

16.1.2 By Interconnection Customer:

Interconnection Customer may unilaterally terminate the Interconnection Service Agreement pursuant to Applicable Laws and Regulations upon providing Transmission Provider and the Interconnected Transmission Owner sixty (60) days prior written notice thereof, provided that Interconnection Customer is not then in Default under the Interconnection Service Agreement.

16.1.3 Upon Default of Interconnection Customer:

Transmission Provider may terminate the Interconnection Service Agreement upon the Default of Interconnection Customer of its obligations under the Interconnection Service Agreement by providing Interconnection Customer and the Interconnected Transmission Owner prior written notice of termination; provided, however, that Transmission Provider shall not terminate the Interconnection Service Agreement due to the failure of Interconnection Customer to make a payment hereunder unless such failure could reasonably be expected to have a material adverse effect on the Interconnected Transmission Owner.

16.2 Disposition of Facilities Upon Termination

16.2.1 Disconnection:

Upon termination of the Interconnection Service Agreement in accordance with this Section 16, Transmission Provider and/or the Interconnected Transmission Owner shall, in coordination with

Interconnection Customer, physically disconnect the Customer Facility from the Transmission System, except to the extent otherwise allowed by this Appendix 2.

16.2.2 Network Facilities:

At the time of termination, the Transmission Provider and the Interconnected Entities shall keep in place any portion of the Interconnection Facilities and/or of any Merchant Network Upgrades that the Transmission Provider deems necessary for the safety, integrity and/or reliability of the Transmission System. Otherwise, Transmission Provider may, in its discretion, within 30 days following termination of Interconnection Service, require the removal of all or any part of the Interconnection Facilities or of any Merchant Network Upgrades.

16.2.2.1 In the event that (i) the Interconnection Service Agreement and Interconnection Service under this Appendix 2 are terminated and (ii) Transmission Provider determines that some or all of the Interconnection Facilities or of any Merchant Network Upgrades that are owned by the Interconnection Customer are necessary for the safety, integrity and/or reliability of the Transmission System, Interconnection Customer, subject to Applicable Laws and Regulations, shall transfer to the Interconnected Transmission Owner title to the Interconnection Facilities or Merchant Network Upgrades that Transmission Provider has determined to be necessary for the safety, integrity and/or reliability of the Transmission System.

16.2.2.2 In the event that removal of some or all of the Interconnection Facilities or any Merchant Network Upgrades is necessary to maintain compliance with Applicable Standards, Interconnection Customer shall be responsible for the costs of any such removal. Interconnection Customer shall have the right to take or retain title to equipment and/or facilities that are removed pursuant to this section; alternatively, in the event that the Interconnection Customer does not wish to retain title to removed equipment and/or facilities that it owns, the Interconnected Transmission Owner may elect to pay the Interconnection Customer a mutually agreed amount to acquire and own such equipment and/or facilities.

16.2.3 Request for Disposition Determination:

Interconnection Customer may request a determination from the Transmission Provider whether any Interconnection Facilities or any Merchant Network Upgrades will be removed in the event of any termination of Interconnection Service to the Customer Facility within the following year. Transmission Provider shall respond to that request no later than sixty (60) days after receipt.

16.3 FERC Approval:

Notwithstanding any other provision of this Appendix 2, no termination hereunder shall become effective until the Interconnected Entities and/or Transmission Provider have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with the FERC of a notice of termination of the Interconnection Service Agreement, and acceptance of such notice for filing by the FERC.

16.4 Survival of Rights:

Termination of this Interconnection Service Agreement shall not relieve any Interconnection Party of any of its liabilities and obligations arising under this Interconnection Service Agreement (including Appendix 2) prior to the date on which termination becomes effective, and each Interconnection Party may take whatever judicial or administrative actions it deems desirable or necessary to enforce its rights hereunder. Applicable provisions of this Appendix 2 will continue in effect after termination to the extent necessary to provide for final billings, billing adjustments, and the determination and enforcement of liability and indemnification obligations arising from events or acts that occurred while the Interconnection Service Agreement was in effect.

17 Confidentiality:

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Interconnection Party providing the information orally informs the Interconnection Party receiving the information that the information is confidential. If requested by any Interconnection Party, the disclosing Interconnection Party shall provide in writing the basis for asserting that the information referred to in this section warrants confidential treatment, and the requesting Interconnection Party may disclose such writing to an appropriate Governmental Authority. Any Interconnection Party shall be responsible for the costs associated with affording confidential treatment to its information.

17.1 Term:

During the term of the Interconnection Service Agreement, and for a period of three (3) years after the expiration or termination of the Interconnection Service Agreement, except as otherwise provided in this Section 17, each Interconnection Party shall hold in confidence, and shall not disclose to any person, Confidential Information provided to it by any other Interconnection Party.

17.2 Scope:

Confidential Information shall not include information that the receiving Interconnection Party can demonstrate: (i) is generally available to the public other than as a result of a disclosure by the receiving Interconnection Party; (ii) was in the lawful possession of the receiving Interconnection Party on a non-confidential basis before receiving it from the disclosing Interconnection Party; (iii) was supplied to the receiving Interconnection Party without restriction by a third party, who, to the knowledge of the receiving Interconnection Party, after due inquiry, was under no obligation to the disclosing Interconnection Party to keep such information confidential; (iv) was independently developed by the receiving Interconnection Party without reference to Confidential Information of the disclosing Interconnection Party; (v) is, or becomes, publicly known, through no wrongful act or omission of the receiving Interconnection Party or breach of this Appendix 2; or (vi) is required, in accordance with Section 17.7 of this Appendix 2, to be disclosed to any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing

rights and obligations under the Interconnection Service Agreement. Information designated as Confidential Information shall no longer be deemed confidential if the Interconnection Party that designated the information as confidential notifies the other Interconnection Parties that it no longer is confidential.

17.3 Release of Confidential Information:

No Interconnection Party shall disclose Confidential Information to any other person, except to its Affiliates (limited by the Commission's Standards of Conduct requirements), subcontractors, employees, consultants or to parties who may be or considering providing financing to or equity participation in Interconnection Customer or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with the Interconnection Service Agreement, unless such person has first been advised of the confidentiality provisions of this Section 17 and has agreed to comply with such provisions. Notwithstanding the foregoing, an Interconnection Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Section 17.

17.4 Rights:

Each Interconnection Party retains all rights, title, and interest in the Confidential Information that it discloses to any other Interconnection Party. An Interconnection Party's disclosure to another Interconnection Party of Confidential Information shall not be deemed a waiver by any Interconnection Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

17.5 No Warranties:

By providing Confidential Information, no Interconnection Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Interconnection Party obligates itself to provide any particular information or Confidential Information to any other Interconnection Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

17.6 Standard of Care:

Each Interconnection Party shall use at least the same standard of care to protect Confidential Information it receives as the Interconnection Party uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Interconnection Party may use Confidential Information solely to fulfill its obligations to the other Interconnection Parties under the Interconnection Service Agreement or to comply with Applicable Laws and Regulations.

17.7 Order of Disclosure:

If a Governmental Authority with the right, power, and apparent authority to do so requests or requires an Interconnection Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Interconnection Party shall provide the Interconnection Party that provided the information with prompt prior notice of such request(s) or requirement(s) so that the providing Interconnection Party may seek an appropriate protective order or waive compliance with the terms of this Appendix 2 or the Interconnection Service Agreement. Notwithstanding the absence of a protective order or agreement, or waiver, the Interconnection Party that is subjected to the request or order may disclose such Confidential Information which, in the opinion of its counsel, the Interconnection Party is legally compelled to disclose. Each Interconnection Party shall use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

17.8 Termination of Interconnection Service Agreement:

Upon termination of the Interconnection Service Agreement for any reason, each Interconnection Party shall, within ten (10) calendar days of receipt of a written request from another party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure and deletion certified in writing to the requesting party) or to return to the other party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting party.

17.9 Remedies:

The Interconnection Parties agree that monetary damages would be inadequate to compensate an Interconnection Party for another Interconnection Party's Breach of its obligations under this Section 17. Each Interconnection Party accordingly agrees that the other Interconnection Parties shall be entitled to equitable relief, by way of injunction or otherwise, if the first Interconnection Party breaches or threatens to breach its obligations under this Section 17, which equitable relief shall be granted without bond or proof of damages, and the receiving Interconnection Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed to be an exclusive remedy for the breach of this Section 17, but shall be in addition to all other remedies available at law or in equity. The Interconnection Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Interconnection Party, however, shall be liable for indirect, incidental or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Section 17.

17.10 Disclosure to FERC or its Staff:

Notwithstanding anything in this Section 17 to the contrary, and pursuant to 18 C.F.R. § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from one of the Interconnection Parties that is otherwise required to be maintained in confidence pursuant to this Interconnection Service Agreement, the Interconnection Party, shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Interconnection Party must,

consistent with 18 C.F.R. § 388.122, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Interconnection Parties are prohibited from notifying the other Interconnection Parties prior to the release of the Confidential Information to the Commission or its staff. An Interconnection Party shall notify the other Interconnection Parties to the Interconnection Service Agreement when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Interconnection Parties may respond before such information would be made public, pursuant to 18 C.F.R. § 388.112.

17.11

Subject to the exception in Section 17.10 of this Appendix 2, no Interconnection Party shall disclose Confidential Information of another Interconnection Party to any person not employed or retained by the Interconnection Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the disclosing Interconnection Party to be required in connection with a dispute between or among the Interconnection Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the Interconnection Party that provided such Confidential Information, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this Interconnection Service Agreement or as a transmission service provider or a Control Area operator including disclosing the Confidential Information to an RTO or ISO or to a regional or national reliability organization. Prior to any disclosures of another Interconnection Party's Confidential Information under this subparagraph, the disclosing Interconnection Party shall promptly notify the other Interconnection Parties in writing and shall assert confidentiality and cooperate with the other Interconnection Parties in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

17.12

This provision shall not apply to any information that was or is hereafter in the public domain (except as a result of a Breach of this provision).

17.13 Return or Destruction of Confidential Information:

If an Interconnection Party provides any Confidential Information to another Interconnection Party in the course of an audit or inspection, the providing Interconnection Party may request the other party to return or destroy such Confidential Information after the termination of the audit period and the resolution of all matters relating to that audit. Each Interconnection Party shall make Reasonable Efforts to comply with any such requests for return or destruction within ten days of receiving the request and shall certify in writing to the other Interconnection Party that it has complied with such request.

18 Subcontractors

18.1 Use of Subcontractors:

Nothing in this Appendix 2 shall prevent the Interconnection Parties from utilizing the services of subcontractors as they deem appropriate to perform their respective obligations hereunder, provided, however, that each Interconnection Party shall require its subcontractors to comply with all applicable terms and conditions of this Appendix 2 in providing such services.

18.2 Responsibility of Principal:

The creation of any subcontract relationship shall not relieve the hiring Interconnection Party of any of its obligations under this Appendix 2. Each Interconnection Party shall be fully responsible to the other Interconnection Parties for the acts and/or omissions of any subcontractor it hires as if no subcontract had been made.

18.3 Indemnification by Subcontractors:

To the fullest extent permitted by law, an Interconnection Party that uses a subcontractor to carry out any of the Interconnection Party's obligations under this Appendix 2 shall require each of its subcontractors to indemnify, hold harmless and defend each other Interconnection Party, its representatives and assigns from and against any and all claims and/or liability for damage to property, injury to or death of any person, including the employees of any Interconnection Party or of any Affiliate of any Interconnection Party, or any other liability incurred by the other Interconnection Party or any of its Affiliates, including all expenses, legal or otherwise, to the extent caused by any act or omission, negligent or otherwise, by such subcontractor and/or its officers, directors, employees, agents and assigns, that arises out of or is connected with the operation of the facilities of either Interconnected Entity described in this Appendix 2; provided, however, that no Interconnection Party or Affiliate thereof shall be entitled to indemnity under this Section 18.3 in respect of any injury, loss, or damage to the extent that such loss, injury, or damage results from the negligence or willful misconduct of the Interconnection Party or Affiliate seeking indemnity.

18.4 Subcontractors Not Beneficiaries:

No subcontractor is intended to be, or shall be deemed to be, a third-party beneficiary of an Interconnection Service Agreement.

19 Information Access And Audit Rights

19.1 Information Access:

Consistent with Applicable Laws and Regulations, each Interconnection Party shall make available such information and/or documents reasonably requested by another Interconnection Party that are necessary to (i) verify the costs incurred by the other Interconnection Party for which the requesting Interconnection Party is responsible under this Appendix 2 and (ii) carry out obligations and responsibilities under this Appendix 2, provided that the Interconnection Parties shall not use such information for purposes other than those set forth in this Section 19.1 and to enforce their rights under this Appendix 2.

19.2 Reporting of Non-Force Majeure Events:

Each Interconnection Party shall notify the other Interconnection Parties when it becomes aware of its inability to comply with the provisions of this Appendix 2 for a reason other than Force Majeure. The parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including, but not limited to, the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Section shall not entitle the receiving Interconnection Party to allege a cause of action for anticipatory breach of the Interconnection Service Agreement.

19.3 Audit Rights:

Subject to the requirements of confidentiality under Section 17 of this Appendix 2, each Interconnection Party shall have the right, during normal business hours, and upon prior reasonable notice to the pertinent other Interconnection Party, to audit at its own expense the other Interconnection Party's accounts and records pertaining to such Interconnection Party's performance and/or satisfaction of obligations arising under this Appendix 2. Any audit authorized by this Section shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to obligations under this Appendix 2. Any request for audit shall be presented to the Interconnection Party to be audited not later than twenty-four months after the event as to which the audit is sought. Each Interconnection Party shall preserve all records held by it for the duration of the audit period.

20 Disputes

20.1 Submission:

Any claim or dispute that any Interconnection Party may have against another arising out of the Interconnection Service Agreement may be submitted for resolution in accordance with the dispute resolution provisions of the Tariff.

20.2 Rights Under The Federal Power Act:

Nothing in this Section shall restrict the rights of any Interconnection Party to file a complaint with FERC under relevant provisions of the Federal Power Act.

20.3 Equitable Remedies:

Nothing in this Section shall prevent any Interconnection Party from pursuing or seeking any equitable remedy available to it under Applicable Laws and Regulations.

21 Notices

21.1 General:

Any notice, demand or request required or permitted to be given by any Interconnection Party to another and any instrument required or permitted to be tendered or delivered by any Interconnection Party in writing to another may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Interconnection Party, or personally delivered to the Interconnection Party, at the address specified in the Interconnection Service Agreement. Such notices, if agreed to by the Interconnection Parties, may be made via electronic means, with e-mail confirmation of delivery.

21.2 Emergency Notices:

Moreover, notwithstanding the foregoing, any notice hereunder concerning an Emergency Condition or other occurrence requiring prompt attention, or as necessary during day-to-day operations, may be made by telephone or in person, provided that such notice is confirmed in writing promptly thereafter. Notice in an Emergency Condition, or as necessary during day-to-day operations, shall be provided (i) if by the Interconnected Transmission Owner, to the shift supervisor at, as applicable, a Generation Interconnection Customer's Customer Facility or a Transmission Interconnection Customer's control center; and (ii) if by the Interconnection Customer, to the shift supervisor at the Interconnected Transmission Owner's transmission control center.

21.3 Operational Contacts:

Each Interconnection Party shall designate, and provide to each other Interconnection Party contact information concerning, a representative to be responsible for addressing and resolving operational issues as they arise during the term of the Interconnection Service Agreement.

22 Miscellaneous

22.1 Regulatory Filing:

In the event that this Interconnection Service Agreement contains any terms that deviate materially from the form included in Attachment O of the Tariff, Transmission Provider shall file the Interconnection Service Agreement on behalf of itself and the Interconnected Transmission Owner with FERC as a service schedule under the Tariff within thirty days after execution. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Section 17 of this Appendix 2. An Interconnection Customer shall have the right, with respect to any Interconnection Service Agreement tendered to it, to request (a) dispute resolution under Section 12 of the Tariff or, if concerning the Regional Transmission Expansion Plan, consistent with Schedule 5 of the Operating Agreement, or (b) that Transmission Provider file the agreement unexecuted with the Commission. With the filing of any unexecuted Interconnection Service Agreement, Transmission Provider may, in its discretion, propose to FERC a resolution of any or all of the issues in dispute between or among the Interconnection Parties.

22.2 Waiver:

Any waiver at any time by an Interconnection Party of its rights with respect to a Breach or Default under this Interconnection Service Agreement or with respect to any other matters arising in connection with this Appendix 2, shall not be deemed a waiver or continuing waiver with respect to any subsequent Breach or Default or other matter.

22.3 Amendments and Rights Under the Federal Power Act:

This Interconnection Service Agreement may be amended or supplemented only by a written instrument duly executed by all Interconnection Parties. An amendment to the Interconnection Service Agreement shall become effective and a part of this Interconnection Service Agreement upon satisfaction of all Applicable Laws and Regulations. Notwithstanding the foregoing, nothing contained in this Interconnection Service Agreement shall be construed as affecting in any way any of the rights of any Interconnection Party with respect to changes in applicable rates or charges under Section 205 of the Federal Power Act and/or FERC's rules and regulations thereunder, or any of the rights of any Interconnection Party under Section 206 of the Federal Power Act and/or FERC's rules and regulations thereunder. The terms and conditions of this Interconnection Service Agreement and every appendix referred to therein shall be amended, as mutually agreed by the Interconnection Parties, to comply with changes or alterations made necessary by a valid applicable order of any Governmental Authority having jurisdiction hereof.

22.4 Binding Effect:

This Interconnection Service Agreement, including this Appendix 2, and the rights and obligations thereunder shall be binding upon, and shall inure to the benefit of, the successors and assigns of the Interconnection Parties.

22.5 Regulatory Requirements:

Each Interconnection Party's performance of any obligation under this Interconnection Service Agreement for which such party requires approval or authorization of any Governmental Authority shall be subject to its receipt of such required approval or authorization in the form and substance satisfactory to the receiving Interconnection Party, or the Interconnection Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Interconnection Party shall in good faith seek, and shall use Reasonable Efforts to obtain, such required authorizations or approvals as soon as reasonably practicable.

23 Representations And Warranties

23.1 General:

Each Interconnected Entity hereby represents, warrants and covenants as follows with these representations, warranties, and covenants effective as to the Interconnected Entity during the time the Interconnection Service Agreement is effective:

23.1.1 Good Standing:

Such Interconnected Entity is duly organized or formed, as applicable, validly existing and in good standing under the laws of its State of organization or formation, and is in good standing under the laws of the respective State(s) in which it is incorporated and operates as stated in the Interconnection Service Agreement.

23.1.2 Authority:

Such Interconnected Entity has the right, power and authority to enter into the Interconnection Service Agreement, to become a party hereto and to perform its obligations hereunder. The Interconnection Service Agreement is a legal, valid and binding obligation of such Interconnected Entity, enforceable against such Interconnected Entity in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

23.1.3 No Conflict:

The execution, delivery and performance of the Interconnection Service Agreement does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of the Interconnected Entity, or with any judgment, license, permit, order, material agreement or instrument applicable to or binding upon the Interconnected Entity or any of its assets.

23.1.4 Consent and Approval:

Such Interconnected Entity has sought or obtained, or, in accordance with the Interconnection Service Agreement will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of the Interconnection Service Agreement and it will provide to any Governmental Authority notice of any actions under this Appendix 2 that are required by Applicable Laws and Regulations.

24 Tax Liability

24.1 Safe Harbor Provisions:

This Section 24.1 is applicable only to Generation Interconnection Customers. Provided that Interconnection Customer agrees to conform to all requirements of the Internal Revenue Service ("IRS") (e.g., the "safe harbor" provisions of IRS Notices 2001-82 and 88-129) that would confer nontaxable status on some or all of the transfer of property, including money, by Interconnection Customer to the Interconnected Transmission Owner for payment of the Costs of construction of the Transmission Owner Interconnection Facilities, the Interconnected Transmission Owner, based on such agreement and on current law, shall treat such transfer of

property to it as nontaxable income and, except as provided in Section 24.4.2 below, shall not include income taxes in the Costs of Transmission Owner Interconnection Facilities that are payable by Interconnection Customer under the Interconnection Service Agreement or the Interconnection Construction Service Agreement. Interconnection Customer shall document its agreement to conform to IRS requirements for such non-taxable status in the Interconnection Service Agreement, the Interconnection Construction Service Agreement, and/or the Interim Interconnection Service Agreement.

24.2 Tax Indemnity:

Interconnection Customer shall indemnify the Interconnected Transmission Owner for any costs that Interconnected Transmission Owner incurs in the event that the IRS and/or a state department of revenue (State) determines that the property, including money, transferred by Interconnection Customer to the Interconnected Transmission Owner with respect to the construction of the Transmission Owner Interconnection Facilities and/or any Merchant Network Upgrades is taxable income to the Interconnected Transmission Owner. Interconnection Customer shall pay to the Interconnected Transmission Owner, on demand, the amount of any income taxes that the IRS or a State assesses to the Interconnected Transmission Owner in connection with such transfer of property and/or money, plus any applicable interest and/or penalty charged to the Interconnected Transmission Owner. In the event that the Interconnected Transmission Owner chooses to contest such assessment, either at the request of Interconnection Customer or on its own behalf, and prevails in reducing or eliminating the tax, interest and/or penalty assessed against it, the Interconnected Transmission Owner shall refund to Interconnection Customer the excess of its demand payment made to the Interconnected Transmission Owner over the amount of the tax, interest and penalty for which the Interconnected Transmission Owner is finally determined to be liable. Interconnection Customer's tax indemnification obligation under this section shall survive any termination of the Interconnection Service Agreement or Interconnection Construction Service Agreement.

24.3 Taxes Other Than Income Taxes:

Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, the Interconnected Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against the Interconnected Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Provider under the terms of this Appendix 2 or Part VI of the Tariff. Interconnection Customer shall pay to the Interconnected Transmission Owner on a periodic basis, as invoiced by the Interconnected Transmission Owner, the Interconnected Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and the Interconnected Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to the Interconnected Transmission Owner for such contested taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal,

Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by the Interconnected Transmission Owner.

24.4 Income Tax Gross-Up

24.4.1 Additional Security:

In the event that Interconnection Customer does not provide the safe harbor documentation required under Section 24.1 prior to execution of the Interconnection Service Agreement, within 15 days after such execution, Transmission Provider shall notify Interconnection Customer in writing of the amount of additional Security that Interconnection Customer must provide. The amount of Security that a Transmission Interconnection Customer must provide initially pursuant to this Interconnection Service Agreement shall include any amounts described as additional Security under this Section 24.4 regarding income tax gross-up.

24.4.2 Amount:

The required additional Security shall be in an amount equal to the amount necessary to gross up fully for currently applicable federal and state income taxes the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer previously provided Security. Accordingly, the additional Security shall equal the amount necessary to increase the total Security provided to the amount that would be sufficient to permit the Interconnected Transmission Owner to receive and retain, after the payment of all applicable income taxes ("Current Taxes") and taking into account the present value of future tax deductions for depreciation that would be available as a result of the anticipated payments or property transfers (the "Present Value Depreciation Amount"), an amount equal to the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer is responsible under the Interconnection Service Agreement. For this purpose, Current Taxes shall be computed based on the composite federal and state income tax rates applicable to the Interconnected Transmission Owner at the time the additional Security is received, determined using the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting the Interconnected Transmission Owner's anticipated tax depreciation deductions associated with such payments or property transfers by its current weighted average cost of capital.

24.4.3 Time for Payment:

Interconnection Customer must provide the additional Security, in a form and with terms as required by Sections 212.4 of the Tariff, within 15 days after its receipt of Transmission Provider's notice under this section. The requirement for additional Security under this section shall be treated as a milestone included in the Interconnection Service Agreement pursuant to Section 217.5 of the Tariff.

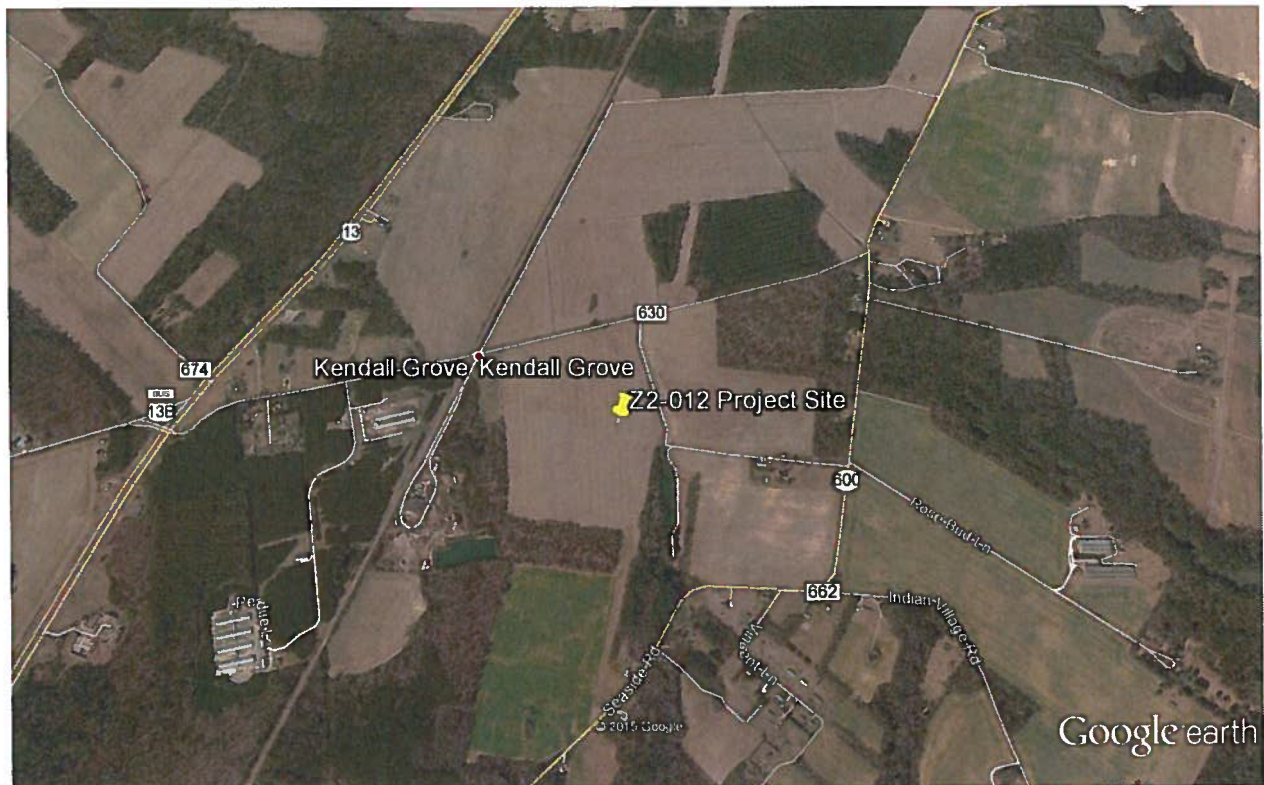
24.5 Tax Status:

Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Interconnection Service Agreement or Part VI of the Tariff is intended to adversely affect any Interconnected Transmission Owner's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

SCHEDULE A

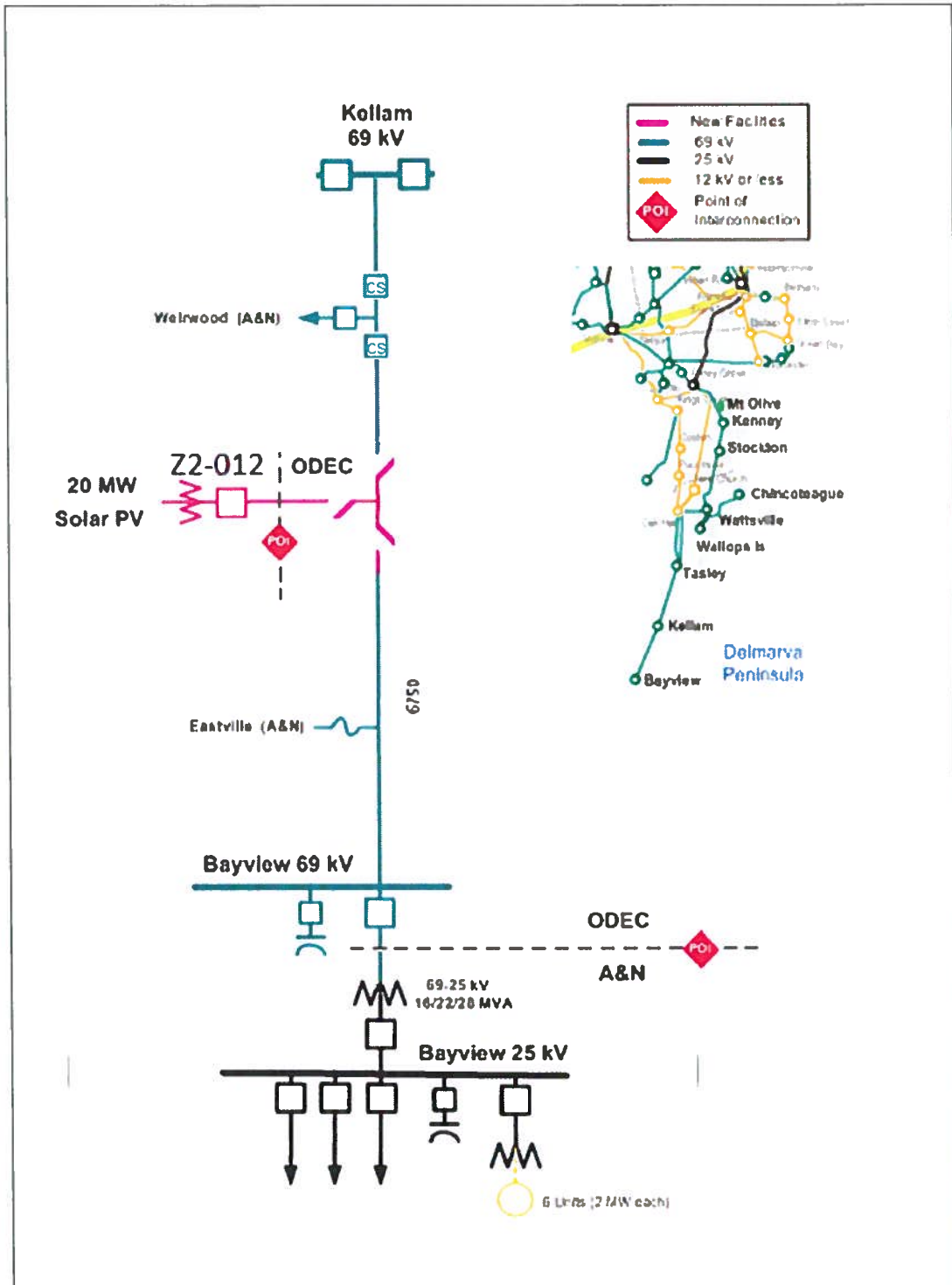
CUSTOMER FACILITY LOCATION/SITE PLAN

1544 Seaside Road
Cape Charles, VA 23310



SCHEDULE B

SINGLE-LINE DIAGRAM



SCHEDULE C

LIST OF METERING EQUIPMENT

1. Interconnection Customer shall own all of the Metering Equipment at the Customer Facility. The Metering Equipment shall consist of the following:

Transformer #2 Primary and Backup Primary Output
Remote Terminal Unit

2. All Metering Equipment shall be sealed, and the seals shall be broken only upon occasions when the Metering Equipment is to be replaced, maintained, inspected, tested, adjusted, or re-calibrated (referred to collectively as "Seal Protected Services). Seal Protected Services shall only be performed by qualified personnel of Interconnected Transmission Owner, Interconnection Customer, or a contractor of Interconnection Customer ("Contractor" and which such Contractor must be pre-approved by Interconnected Transmission Owner). All Seal Protected Services shall be performed in accordance with Good Utility Practice.
3. Interconnected Transmission Owner shall have the right to witness, at its own expense, any Seal Protected Services performed by Interconnection Customer or its Contractor. Interconnection Customer shall provide Interconnected Transmission Owner with at least 48 hours notice, when reasonably possible, before performance of any Seal Protected Services. In the event that Interconnected Transmission Owner performs the Seal Protected Services, Interconnection Customer shall reimburse Interconnected Transmission Owner for any actual costs incurred.
4. Except for paragraph 5 of this Schedule C, in the event of any conflict between a provision of this Schedule C and Appendix 2 of this ISA, the pertinent provision of this Schedule C shall control.
5. Metering Equipment shall meet the requirements stated in PJM manuals M01 & M14D and provide the following generator data:
 - a. Instantaneous net MW for the plant.
 - b. Instantaneous net MVAR for the plant.
 - c. Hourly compensated MWh delivered by the plant.
 - d. Hourly compensated MVARh delivered by the plant.

SCHEDULE D

APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

None

SCHEDULE E
SCHEDULE OF CHARGES

The Administration, Metering, Telemetering, and Operation and Maintenance (“O&M”) charges referenced below refer to charges described in Section 10.1 of the Standard Terms and Conditions for Interconnections, which are contained in Appendix 2 of this ISA.

ADMINISTRATION CHARGES

The charges that ODEC would assess for Administration Charges would be its actual costs.

METERING CHARGES

The charges that ODEC would assess for Metering Charges would be its actual costs.

TELEMETERING CHARGES

The charges that ODEC would assess for Telemetering Charges would be its actual costs.

O&M CHARGES

ODEC reserves the right to charge its actual costs to the Interconnection Customer for O&M expenses to maintain the Interconnection Customer’s Attachment Facilities including metering equipment owned by Interconnected Transmission Owner, as well as any communications expenses related to relay protection.

SCHEDULE F

SCHEDULE OF NON-STANDARD TERMS & CONDITIONS

None

SCHEDULE G

INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS

As provided in Section 24.1 of Appendix 2 to this ISA and subject to the requirements thereof, Interconnection Customer represents that it meets all qualifications and requirements as set forth in Section 118(a) and 118(b) of the Internal Revenue Code of 1986, as amended and interpreted by Notice 88-129, 1988-2 C.B. 541, and as amplified and modified in Notices 90-60, 1990-2 C.B. 345, and 2001-82, 2001-2 C.B. 619 (the "IRS Notices"). Interconnection Customer agrees to conform with all requirements of the safe harbor provisions specified in the IRS Notices, as they may be amended, as required to confer non-taxable status on some or all of the transfer of property, including money, by Interconnection Customer to Interconnected Transmission Owner with respect to the payment of the Costs of construction and installation of the Transmission Owner Interconnection Facilities and/or Merchant Network Upgrades specified in this ISA.

Nothing in Interconnection Customer's agreement pursuant to this Schedule G shall change Interconnection Customer's indemnification obligations under Section 24.2 of Appendix 2 to this ISA.

SCHEDULE H
INTERCONNECTION REQUIREMENTS FOR A
WIND GENERATION FACILITY

Not Required

5. Maximum Generation Capacity Certification

T&D Solutions, LLC
6250 Greystone Creek Road
Mechanicsville, VA 23111

This is to certify that the planned Hecate Energy, LLC photovoltaic project in Cape Charles, Virginia is less than 100 MW.

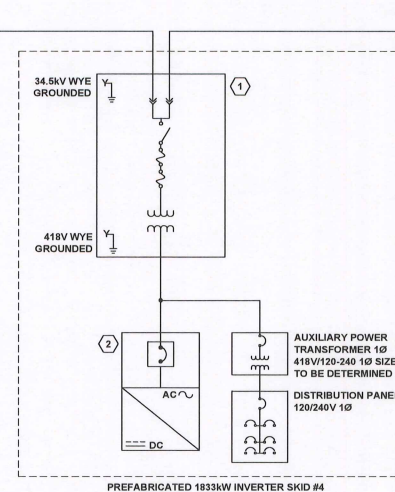
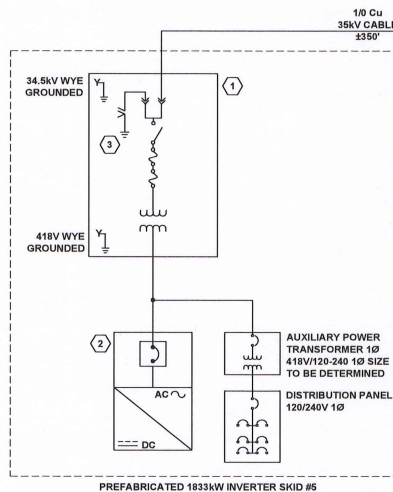
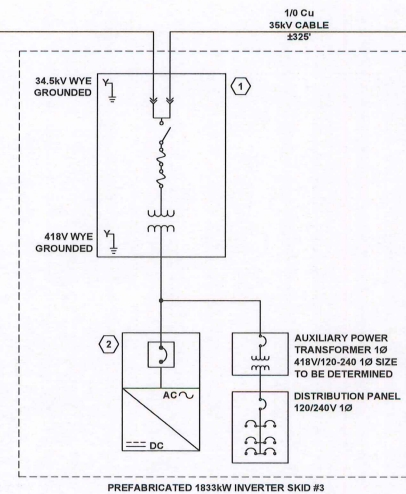
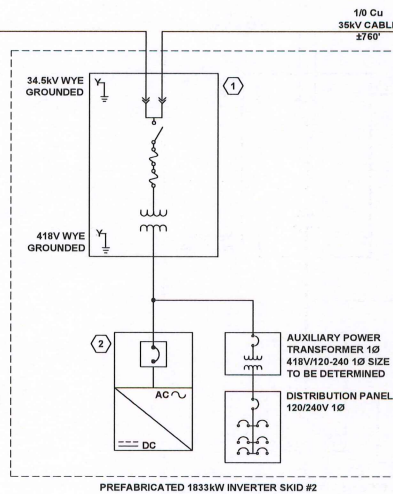
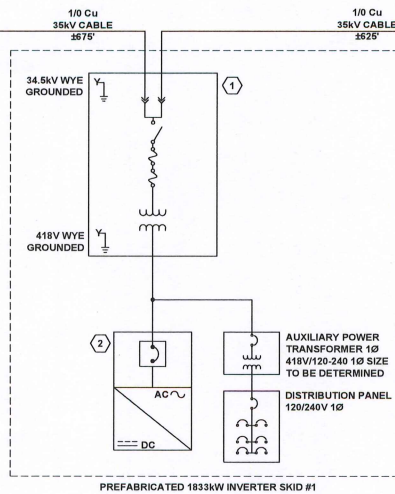


5-10-2016

5-10-2016



TO BREAKER #1
IN METAL CLAD
SWITCHGEAR
DWG E-1



KEYED NOTES (1), (2), (3)

- 2000kVA 34.5kV WYE GROUND/418V WYE GROUND 5.75% IMPEDANCE WITH 600A ELBOWS, LIGHTNING ARRESTERS AND 2 POSITION SWITCH
- 1833kW/2000kVA TMEIC (PVL-L1833GRM) INVERTER
- STATION CLASS SURGE ARRESTER

1
E-2

CONCEPTUAL ELECTRICAL ONE LINE DIAGRAM

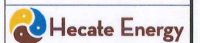
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HECATE ENERGY
115 ROSA PARKS BOULEVARD
NASHVILLE, TN 37203
hecateenergy.com

NO.	DATE	REVISION DESCRIPTION
0	08/05/15	PRELIMINARY SUBMISSION
1	10/15/15	REVISED LAYOUT AND SINGLE LINE
2	3/10/16	REVISED LAYOUT AND SINGLE LINE
3	04/05/16	REVISED SINGLE LINE
4	04/05/16	REVISED SINGLE LINE

PROJECT:
±24.738 MW (DC), 20.163 MW (AC),
GROUND MOUNTED
PHOTOVOLTAIC SYSTEM

HECATE ENERGY
CHERRYDALE
CAPE CHARLES, VA 23310
NORTHAMPTON COUNTY

BLOCK:	—	LOG:	—
SCALE:	AS SHOWN	PROJECT NO:	09-10-11T
PLOT DATE:	4/10/16	CLIENT:	HECATE
DRAWN BY:	P.E.	REVIEWED BY:	J.E.

DRAWING TITLE:
CONCEPTUAL ELECTRICAL
ONE LINE DIAGRAM

DRAWING NO.:
E-2

SHEET NO.:
3 OF 4

5-10-2014



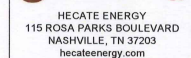
- 1 CONCEPTUAL ELECTRICAL ONE LINE DIAGRAM
E-2

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NO.	DATE:	REVISION DESCRIPTION
0	03/20/15	PRELIMINARY SUBMISSION
1	11/13/15	REVISED LAYOUT AND SINGLE LINE
2	3/17/16	REVISED LAYOUT AND SINGLE LINE
3	04/15/16	REVISED SINGLE LINE
4	04/19/16	REVISED SINGLE LINE

PROJECT:

**±24.738 MW (DC), 20.163 MW (AC)
GROUND MOUNTED
PHOTOVOLTAIC SYSTEM**

HECATE ENERGY
CHERRYDALE
CAPE CHARLES, VA 23310
NORTHAMPTON COUNTY

<u>BLOCK:</u>	--	<u>LOT:</u>	--
<u>SCALE:</u>	AS SHOWN	<u>PROJECT NO:</u>	09-10-11T
<u>PLOT DATE:</u>	4/19/16	<u>CLIENT:</u>	HECATE
<u>DRAWN BY:</u>	P. E.	<u>REVIEWED BY:</u>	J.T.

DRAWING TITLE:

CONCEPTUAL ELECTRICAL ONE LINE DIAGRAM

DRAWING NO.:

E-3

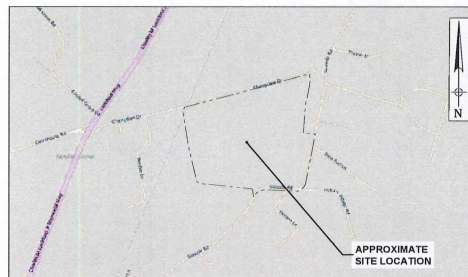
SHEET NO.:

4 OF 4

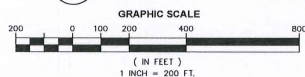


KEY MAP

SCALE: 1"=±1500'



1 CONCEPTUAL PLAN
CP-1 SCALE: 1:200



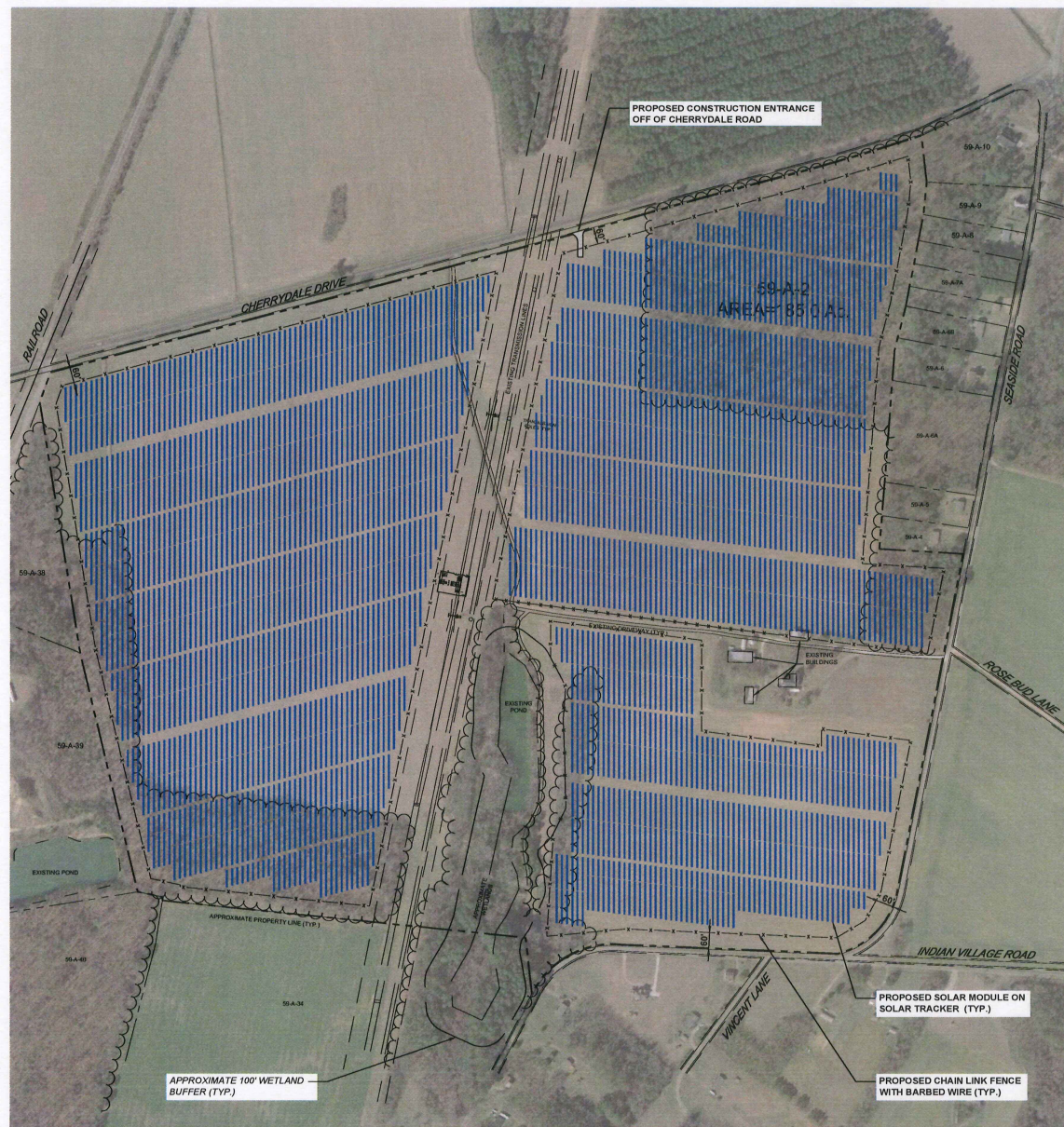
NOTES:

1. THIS CONCEPTUAL LAYOUT IS BASED SOLELY ON AERIAL PHOTOGRAPHS AND PROVIDED PLANS. NO SITE VISITS WERE CONDUCTED THEREFORE SHADE IMPACT IS APPROXIMATE ONLY.
2. NO VERIFICATION OF SOIL CAPACITY WAS CONDUCTED. A FULL GEOTECHNICAL ANALYSIS IS SUGGESTED.
3. VEGETATED BUFFER SHALL BE A MINIMUM OF 50 FEET WIDE AND CONSIST OF PLANT MATERIAL THAT ARE MATURE ENOUGH TO EFFECTIVELY SCREEN THE VIEW, TO 8 FEET ABOVE GROUND LEVEL, OF THE SOLAR PANELS FROM ADJACENT PROPERTIES ALL YEAR ROUND.
4. LAYOUT SHOWN IS NOT FINAL. MODULES MAY BE PLACED AS CLOSE TO CHAIN-LINK FENCE AS POSSIBLE.

NOT FOR CONSTRUCTION

PV SYSTEM SPECIFICATIONS

MODULE	72-CELL MODULE
RACKING	SOLAR TRACKER

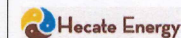


7 PLEASANT HILL ROAD
CHERRYDALE, VA 23031
TEL: (703) 990-3858
FAX: (703) 990-9496

SEAL:

DRAWING NOTES:

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HECATE ENERGY
115 ROSA PARKS BOULEVARD
NASHVILLE, TN 37203
hecateenergy.com

NO.	DATE	REVISION DESCRIPTION
1	05/09/15	PRELIMINARY SUBMISSION
2	11/15/15	REVISED LAYOUT AND SINGLE LINE
3	12/01/15	REVISED LAYOUT AND SINGLE LINE
4	05/06/16	REVISED LAYOUT
5	05/15/16	CONSTRUCTION ENTRANCE ADDED
6	05/15/16	100' WETLAND BUFFER ADDED

PROJECT:

20 MW (AC)
GROUND MOUNTED
PHOTOVOLTAIC SYSTEM

HECATE ENERGY
CHERRYDALE
CAPE CHARLES, VA 23310
NORTHAMPTON COUNTY

SCALE	AS SHOWN	PROJECT NO.	05-10-111
PLOT DATE	12/1/16	CLIENT	HECATE
DRAWN BY	P.E.	REVIEWED BY	J.T.

DRAWING TITLE:

CONCEPTUAL PLAN

DRAWING NO.:

CP-1

SHEET NO.:

1 OF 1

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Z:\WHITMAN\200905-10-11T-PRO-TECH CAPE CHARLES VIRGINIA\PRELIMINARY SITE PLAN\20MWREV 509-10-11T.CPJ

5-10-2016

6. Analysis of Potential Impact on Air Quality Standards



Analysis of Potential Impact on Air Quality Standards

DEQ PBR Requirement:

In accordance with § 10.1-1197.6 B 6 of the Code of Virginia, furnishes to the department an analysis of potential environmental impacts of the small renewable energy project's operations on attainment of national ambient air quality standards;

Compliance Analysis:

The proposed project will provide sufficient electrical services for ODEC/ANEC to power approximately 3,280 residential dwellings (approximately 164 homes per megawatt of installed capacity). Operation of the proposed renewable energy project will not be a detriment to attainment of national ambient air quality standards, as the operations will not have off-gassing or any burning as associated with traditional energy generation. Operation of the project will not have a negative effect on air quality, but rather the proposed project will provide an improvement on air quality. Operating a solar project over time and through the ODEC/ANEC grid will reduce the need to operate traditional energy generating facilities that do have a negative impact on air quality.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for air pollutants. The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone, suspended particulate matter less than or equal to 10 microns in diameter (PM₁₀), fine particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), and lead (Pb). CO, SO₂, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval.



Northampton County is classified by the USEPA as unclassified/attainment for all criteria pollutants. Although all areas in the county are in attainment, the project was reviewed for potential contribution to a potential reduction in NAAQS. No generators, boilers, or other equipment requiring an air permit are anticipated for the site. There would be no long-term air quality effects associated with routine operations of the solar farm.

Construction activities associated with the proposed project would generate particulate matter from soil disturbances and diesel-powered equipment. It is expected that minor amounts of carbon monoxide and precursor pollutants for ozone would be emitted by tailpipe emissions from construction equipment and vehicles. Any air pollutants would be widely dispersed across the project area and short-term in nature. Air pollutants would be minimized by dust suppression (watering) and vehicle maintenance.

Dust mitigation measures will be required during construction of the proposed solar farm. Measures may include watering of disturbed areas and sweeping or other methods to control tire track-out at intersections with construction and paved areas. Minor emissions from construction can be further reduced or mitigated through the use of BMPs. BMPs for dust control include spraying water on exposed surfaces to minimize dust, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize fugitive dust, using a soil stabilizer (chemical dust suppressor), mulching, using a temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks transporting soil, sand, or other loose material off-site. BMPs for construction vehicle and equipment emissions include limiting vehicle idling time, using low or ultra-low sulfur fuel (including biodiesel), conducting proper vehicle maintenance, and using electric-powered tools (instead of gas-powered tools). It is anticipated that construction contractors will properly maintain their fleet of vehicles/equipment so that air emissions are kept to a minimum over time.

Based on the above information, it is not anticipated that the project would have a negative impact on the small renewable energy project's operations on attainment of NAAQS.

7. Analysis of Potential Beneficial/Adverse Impacts on Natural Resources

October 20, 2015



Hecate Energy
115 Rosa Parks Boulevard
Nashville, TN 37203

Attn: Mr. Andrew Boggs
Manager, Development
aboggs@hecateenergy.com

Re: Threatened and Endangered Species (T&E) Review
Proposed Cherrydale Solar Project
Cherrydale Drive
Cape Charles, Northampton County, Virginia
Terracon Project No. 49157617B

Dear Mr. Boggs:

Terracon Consultants, Inc. (Terracon) is pleased to provide a review of the site conditions observed and available documentation pertaining to T&E species at the above-referenced site. This work was performed in general accordance with the scope of services outlined in Terracon Proposal No. P49150379 dated June 17, 2015. At your request, below is a summary of information pertaining to T&E species at the site. This report was prepared for the exclusive reliance of Hecate Energy. Reliance by any other party (other than a regulatory agency having jurisdiction) is prohibited without the written authorization of Hecate Energy and Terracon.

Project Information

The site consists of 185 acres of open agricultural land and wooded land located south of Cherrydale Drive near Eastville in Northampton County, Virginia. An open water pond and small creek channel are located on the site. A bottomland hardwood wetland was observed on the south end of the site and upland forested areas on the southwest and northeast portions of the site. It is Terracon's understanding that the site is proposed to be developed as a solar farm. Site photographs and applicable maps are attached at the end of this report.

Search Engine Review

The United States Fish and Wildlife Service (USFWS) Information Planning and Conservation (IPaC) system was utilized to identify potential federally protected species that may occur in the site area. Additionally, the Virginia Department of Inland Game and Fisheries (DGIF) Virginia Fish and Wildlife Information Service (VaFWIS) Search Engine was utilized to identify state and federally listed species that may occur in the site area. The IPaC system identified one federally protected species which is listed as threatened. The VaFWIS identified 26 protected species

(see attached report for species status listings). The IPaC system lists no critical habitat or refuges on or in the vicinity of the site. The following sections summarize the potential for federally listed species being present on the site. Additionally, a summary of state species of interest is also provided. An effect finding is provided for each species based on observed habitat characteristics in relation to each species suitable habitat.

Northern long-eared bat (*Myotis septentrionalis*) – Federally Threatened

The northern long-eared bat is small to medium sized (generally around three inches in length), but has a much larger wingspan than other bats in eastern United States. This species is a light brownish color with wooly fur and is most often distinguished from other *Myotis* by its long ears. As with Indiana, the northern long-eared bat requires caves with stable temperatures for hibernation, although temperature range can vary more than the other two species. Summer roosting and foraging is similar to the Indiana bat; however, this species also more commonly utilizes ridgelines and hilly areas as well as riparian areas. Trees with exfoliating bark and snags (dead trees) with loose, peeling chunks of bark and/or crevices and holes are utilized for roosting.

A majority of the site was observed as active cropland; however, patches of mixed hardwood pine forest were observed on the northeast and southwest portions of the site. Forest characteristics in both areas appear to be middle aged species dominated by a mixture of oak and hickory species as well as loblolly pine (*Pinus taeda*). Numerous white oaks (*Quercus alba*) greater than five inches in diameter were observed with peeling/exfoliating bark as well as numerous snags with peeling bark and crevices (see attached photos). Flight corridors such as fence lines, riparian zones, or canopy openings were observed as limited; however, abundant open paths are available in adjacent open agricultural fields. A pond is located on the south end of the site which provides potential feeding grounds for insects. No caves or other hibernacula habitat were observed on or in the vicinity of the site. Based on observed site characteristics, it is Terracon's opinion the wooded portions of the site provide suitable summer roosting habitat for the Northern-long eared bat.

Terracon spoke with Mr. Troy Andersen (Supervisory Wildlife Biologist for the USFWS Gloucester, VA Office) regarding potential effects to the Northern long-eared bat in regards to tree clearing. Mr. Andersen stated that a finding of "may affect, not likely to adversely affect" would apply for the Northern long-eared bat if tree clearing is proposed outside the months of June and July. Furthermore, the USFWS Northern long-eared bat final 4(d) rule focuses on clearing outside of those months once the pups are no longer there. Terracon has discussed and will confirm with the client that tree clearing activities will occur outside the months of June and July. Based on the proposed site plans, approximately 28 acres of tree clearing is proposed. If tree clearing is proposed outside of the months of June and July, site activities may affect, but are not likely to adversely affect the Northern long-eared bat under the conditions of the 4(d) rule.

VDGIF State Listed Species

Terracon also performed a state level review in accordance with 10.1-1197.6 B 7 of the Code of Virginia. The review applies to the Virginia Department of Environmental Quality (VDEQ) Solar Permit by Rule (PPR) process which requires detailed desktop studies of potential occurrences and/or habitat in the area. The DGIF VaFWIS Search Engine and VA Natural Heritage occurrence listings were reviewed for occurrence and habitat listings. Species occurrence listings resulted in 26 protected or species of concern listings within a three mile radius of the site. A VaFWIS Wildlife Environmental Review Map Service (WERMS) map was generated which depicts no threatened or endangered species of concern within or adjacent to the proposed Project area. One species observation point is identified approximately 200 feet east of the site which is listed as the woodland box turtle (*Terrapene carolina*). The species can be found in upland wooded areas throughout the state of Virginia; however, is only listed as a Tier III species. The species receives no legal state protection; however, Terracon will request the construction team to notify the client if the species is identified during site activities. As with most box turtles, the woodland box turtle is easily identifiable with its brown carapace and yellow splotches on the shell. The construction team will be provided with fliers illustrating the appearance of the woodland box turtle. Box turtles are most active in the morning hours and after a rain. An observation sweep of the wooded area will be recommended prior to tree clearing. If a turtle is identified on the site, Terracon will be contacted to confirm the species and the individual will be relocated from the construction zone as not to be impacted.

A species observation of the black rail (*Laterallus jamaicensis*) is reported in two locations approximately 1.5 miles southeast of the site within a salt marsh. This species inhabits marshy areas within abundant vegetative cover and rarely flies inland. No adverse effect is expected based on the nature of this species and location in relation to the Project area.

The WERMS map also illustrates five bald eagles nests and two bald eagles roosts within the two mile site radius (white circles on the WERMS map). Four of these nests are reported as historical with only one reported active in the last five years. This nest is located approximately 1.8 miles west of the site in the vicinity of the two roost locations. The Virginia Center Conservation for Biology (VCCB) Eagle Nest Mapping program was also utilized. The program identified the same nest and east roost locations approximately two miles east of the site. The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c) states that development within 660 feet of a nest is subject to development restrictions and potential mitigation. The identified bald eagle nest and roosts are not located within 660 feet of the site; therefore, potential development regulations will not apply under the BGEPA. Furthermore, site development consists of the placement of solar panels which normally are no higher than 10 to 15 feet above the ground. A proposed solar farm on the site would have no impact on the bald eagle.

Further review of the WERMS map and species data generated through the VaFWIS search engine did not indicate potential species or habitat that would be negatively impacted by the

T&E Assessment

Cherrydale Solar Farm ■ Northampton County, Virginia
October 20, 2015 ■ Terracon Project No. 49157617B



proposed Project. No potential sea turtle nesting beaches were identified within a one-half mile distance of the site, and the site location is greater than one-half mile from any beach or estuarine area. The site is located in a coastal zone; however, no pristine high quality wetlands or dune communities are present. None of the listed vascular plants were identified on the site. Site habitat does not support suitable habitat for these species with exception to the Northern long-eared bat which has been discussed above. The VDGIF information center search map (site coordinates) indicates terrestrial habitat within the wooded land on the southwest portion of the site. The location coincides with potential roosting habitat for the Northern long-eared bat. The WERMS map does not indicate hibernacula or roosting locations for the Northern long-eared bat on the site. Based on a review of VA Natural Heritage and VDGIF resources, proposed site development would have no effect on state listed species. The DGIF VaFWIS Search Engine and VA Natural Heritage occurrence listings are attached at the end of this report.

The VDEQ SPR process also requires an analysis for potential migratory bird impact based on Virginia's Coastal Avian Protection Zones (CAPZ). The site is located within CAPZ 5 which is designated as barrier island/seaside lagoon system. Staging and wintering areas for shorebirds comprise the main avian species known for the areas. The site is not located directly on the coast and consists primarily of active cropland. No effect to coastal habitat for shore birds or other migratory birds is expected. However, due to the site being located in CAPZ 5, a contribution of \$1,000/megawatt of rated capacity may apply to be donated to the VDEQ based on the SPR potential impact to avian species. The VDEQ should be contacted following the submittal of this report to the agency to determine if a donation will apply, or if a waiver may be granted based on the location and nature of the project.

Based on a review of federal and state listed species that could potentially occur in the area of the site, it is Terracon's opinion that future development at the site may affect but are not likely to adversely affect the Northern long-eared bat provided that tree clearing is proposed outside the months of June and July under the conditions of the 4(d) rule. Future development activities would have no effect on state listed threatened and endangered species; however, coordination with the VDEQ in regards the SPR and the site being located in CAPZ 5. Following a review of this document by the client, Terracon will forward this letter report to the USWFS Norfolk, Virginia field office for concurrence. The letter will also be issued to the VDEQ as a portion of the SPR application package.

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third party resources supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed to with our client. Findings, conclusions, and recommendations resulting from these

T&E Assessment

Cherrydale Solar Farm ■ Northampton County, Virginia
October 20, 2015 ■ Terracon Project No. 49157617B



services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time.

We appreciate the opportunity to provide services to Hecate Energy. If you have any questions concerning this report, or if we can assist you in any other matter, please call our office at 770-623-0755.

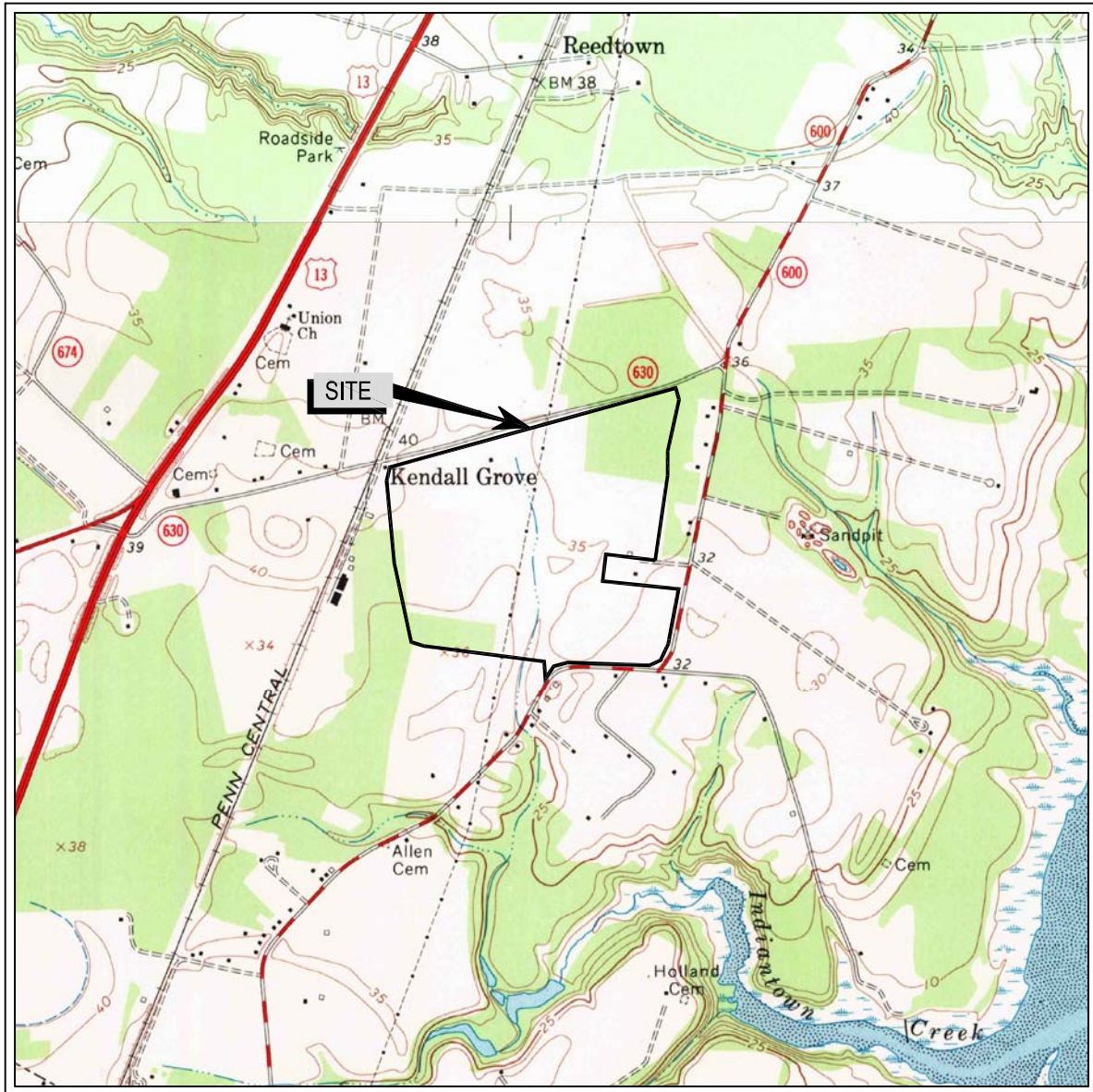
Sincerely,

Terracon

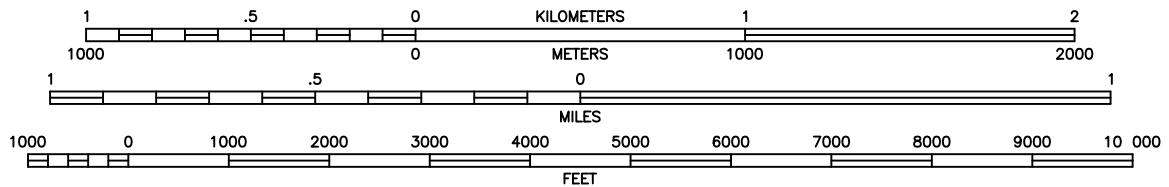
A handwritten signature in dark ink, appearing to read "Jim W. Baxter".

Jim W. Baxter
Senior Ecologist

Attachments: Exhibit 1: Topographic Vicinity Map
Exhibit 2: Aerial Photograph
Effects Table
IPAC List
VA Heritage List
VDGIF Occurrence Listings
WERMS Map
VDGIF Information Center Map
Site Photographs



SCALE 1:24 000



CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

FRANKTOWN, VA
CHERITON, VA
1968

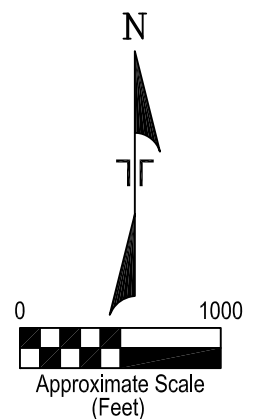
7.5 MINUTE SERIES (TOPOGRAPHIC)

*INDICATES WHICH MAP SITE IS LOCATED ON


Project Mngr:	JWB	Project No.	49157617	Terracon Consulting Engineers and Scientists 2855 Premiere Parkway, Suite C Duluth, GA 30097 (770) 623-0755 (770) 623-9628		TOPOGRAPHIC VICINITY MAP PHASE I ENVIRONMENTAL SITE ASSESSMENT CHERRYDALE SOLAR FARM SITE CHERRYDALE DRIVE EASTVILLE, VA		EXHIBIT 1
Drawn By:	TLY	Scale:	AS SHOWN					
Checked By:	JWB/MRF	File No.	ESA49157617-1					
Approved By:	JWB	Date:	SEPTEMBER 2015					



2015 AERIAL PHOTOGRAPH



* SITE BOUNDARIES ARE APPROXIMATE

Project Mngr: JWB	Project No. 49157617	 2855 Premiere Parkway, Suite C Duluth, GA 30097 (770) 623-0755 (770) 623-9628	AERIAL PHOTOGRAPH PHASE I ENVIRONMENTAL SITE ASSESSMENT CHERRYDALE SOLAR FARM SITE CHERRYDALE DRIVE EASTVILLE, VA	EXHIBIT 5
Drawn By: TLY	Scale: AS SHOWN			
Checked By: JWB/MRF	File No. ESA49157617-6			
Approved By: JWB	Date: SEPTEMBER 2015			

Species Conclusions Table

Project Name: Cherrydale Solar Farm

Date: April 10, 2016

[illegible]



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Ecological Services Field Office

6669 SHORT LANE

GLOUCESTER, VA 23061

PHONE: (804)693-6694 FAX: (804)693-9032

URL: www.fws.gov/northeast/virginiafield/

Consultation Code: 05E2VA00-2016-SLI-2422

April 28, 2016

Event Code: 05E2VA00-2016-E-02925

Project Name: Cherrydale Solar Farm

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and

endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Cherrydale Solar Farm

Official Species List

Provided by:

Virginia Ecological Services Field Office

6669 SHORT LANE

GLOUCESTER, VA 23061

(804) 693-6694

<http://www.fws.gov/northeast/virginiafield/>

Consultation Code: 05E2VA00-2016-SLI-2422

Event Code: 05E2VA00-2016-E-02925

Project Type: ** OTHER **

Project Name: Cherrydale Solar Farm

Project Description: Located south of Cherrydale Drive, Cape Charles, VA

185 acres of cultivated land and wooded land

proposed solar farm

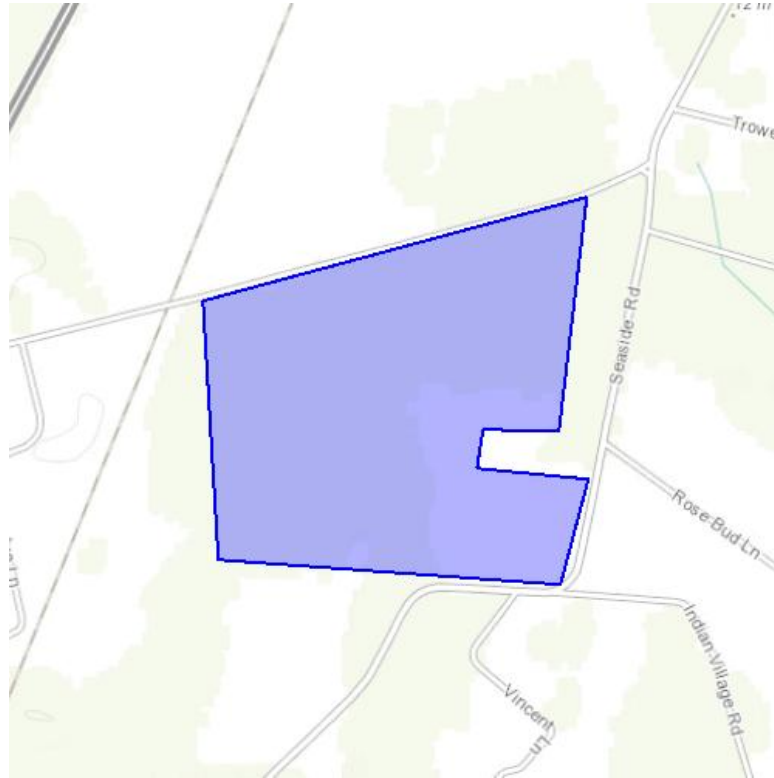
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Cherrydale Solar Farm

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-75.92037677764893 37.36804257303276, -75.91994762420654 37.3624487984681, -75.91063499450682 37.36193715193087, -75.90986251831055 37.36422247945525, -75.91293096542357 37.364444186630855, -75.91275930404663 37.36526279206608, -75.91067790985107 37.36524573787728, -75.9099268913269 37.370310661569974, -75.92037677764893 37.36804257303276)))

Project Counties: Northampton, VA



United States Department of Interior
Fish and Wildlife Service

Project name: Cherrydale Solar Farm

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Cherrydale Solar Farm

Critical habitats that lie within your project area

There are no critical habitats within your project area.



United States Department of Interior
Fish and Wildlife Service

Project name: Cherrydale Solar Farm

Appendix A: FWS National Wildlife Refuges and Fish Hatcheries

There are no refuges or fish hatcheries within your project area.

Natural Heritage Resources

Your Criteria

Taxonomic Group: Select All

County: Northampton

Search Run: 10/22/2015 10:27:29 AM

Result Summary

Total Species returned: 43

Total Communities returned: 19

Click scientific names below to go to NatureServe report.

Click column headings for an explanation of species and community ranks.

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Northampton							
BIRDS							
Gadwall	Anas strepera	G5	S2B,S4N	None	None	2	Y
Great Egret	Ardea alba	G5	S2S3B,S3N	None	None	11	Y
Piping Plover	Charadrius melodus	G3	S2B,S1N	LT	LT	16	Y
Wilson's	Charadrius	G5	S1B	None	LE	11	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Plover	wilsonia						
Northern Harrier	Circus cyaneus	G5	S1S2B,S3N	None	None	15	Y
Little Blue Heron	Egretta caerulea	G5	S2B,S3N	None	None	5	Y
Snowy Egret	Egretta thula	G5	S2B,S3N	None	None	9	Y
Tricolored Heron	Egretta tricolor	G5	S2B,S3N	None	None	6	Y
White Ibis	Eudocimus albus	G5	S1B	None	None	2	Y
Peregrine Falcon	Falco peregrinus	G4	S1B,S2N	None	LT	35	Y
Gull-billed Tern	Gelochelidon nilotica	G5	S2B	None	LT	19	Y
Caspian Tern	Hydroprogne caspia	G5	S1B,S2N	None	None	5	Y
Yellow-crowned Night-heron	Nyctanassa violacea	G5	S2S3B,S3N	None	None	10	Y
Brown Pelican	Pelecanus occidentalis	G4	S2B,S3N	None	None	2	Y
Glossy Ibis	Plegadis falcinellus	G5	S2B,S1N	None	None	5	Y
King Rail	Rallus elegans	G4	S2B,S3N	None	None	10	Y
Black Skimmer	Rynchops niger	G5	S2B,S1N	None	None	19	Y
Least Tern	Sternula antillarum	G4	S2B	None	None	18	Y
Royal Tern	Thalasseus maximus	G5	S2B	None	None	6	Y
Sandwich	Thalasseus	G5	S1B	None	None	4	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Tern	sandvicensis						
COLEOPTERA (BEETLES)							
Northeastern Beach Tiger Beetle	Cicindela dorsalis dorsalis	G3G4T2	S2	LT	LT	18	Y
MAMMALS							
Delmarva Fox Squirrel	Sciurus niger cinereus	G5T3	S1	LE	LE	2	Y
OTHER							
	<i>Bird Nesting Colony</i>	G5	SNR	None	None	29	Y
	<i>Colonial Wading Bird Colony</i>	G5	S2	None	None	10	Y
Landbird Migratory Concentration Area	<i>Landbird Migratory Concentration Area</i>	G3	S1	None	None	1	Y
Monarch Butterfly Migratory Roost Site	<i>Monarch Butterfly Migratory Roost Site</i>	GU	S1	None	None	1	Y
REPTILES							
Loggerhead (Sea Turtle)	Caretta caretta	G3	S1B,S1N	LE	LT	5	Y
TERRESTRIAL NATURAL COMMUNITY							
Xeric Backdune Grassland	<i>(Morella pensylvanica)</i> <i>/ Schizachyrium littorale</i> <i>Shrub</i>	G2	S2	None	None	3	Y

<i>Common Name/Natural Community</i>	<i>Scientific Name</i>	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	<i>Statewide Occurrences</i>	<i>Virginia Coastal Zone</i>
Glasswort Salt Flat	<i>Herbaceous Vegetation (Salicornia virginica, Salicornia bigelovii, Sarcocornia pacifica)</i>	G5	S3	None	None	4	Y
Maritime Swamp Forest (Red Maple - Tupelo Type)	<i>Herbaceous Vegetation Acer rubrum - Nyssa (biflora, sylvatica) / Morella cerifera / Leersia (oryzoides, virginica) Forest</i>	G2	S2	None	None	2	Y
Coastal Plain / Outer Piedmont Acidic Seepage Swamp	<i>Acer rubrum - Nyssa sylvatica - Magnolia virginiana / Viburnum nudum / Osmundastrum cinnamomeum - Woodwardia areolata</i>	G3?	S3	None	None	30	Y

<i>Common Name/Natural Community</i>	<i>Scientific Name</i>	<u>Global Conservation Status Rank</u>	<u>State Conservation Status Rank</u>	<u>Federal Legal Status</u>	<u>State Legal Status</u>	<i>Statewide Occurrences</i>	<i>Virginia Coastal Zone</i>
	<i>Forest</i>						
North Atlantic Mixed Dune Grassland	<i>Ammophila breviligulata - Panicum amarum Herbaceous Vegetation</i>	G2	S2	None	None	3	Y
North Atlantic Upper Beach / Overwash Flat	<i>Cakile edentula - Salsola kali Herbaceous Vegetation</i>	G4G5	S3	None	None	4	Y
Maritime Dune Grassland	<i>Maritime Dune Grassland</i>	G2	S2	None	None	1	Y
Maritime Wet Grassland	<i>Maritime Wet Grassland</i>	G2	S2	None	None	2	Y
Wax Myrtle Interdune Shrubland	<i>Morella cerifera - Baccharis halimifolia / Spartina patens Shrubland</i>	G3G4	S2S3	None	None	2	Y
Wax Myrtle Maritime Shrub Swamp	<i>Morella cerifera - Toxi codendron radicans / Hydrocotyle verticillata Shrubland</i>	G2G3	S2?	None	None	1	Y
Northern	<i>Morella</i>	G2	S2?	None	None	2	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Bayberry Dune Scrub	<i>pensylvanica</i> - (<i>Prunus serotina</i> , <i>Diospyros virginiana</i>) / <i>Solidago sempervirens</i> Shrubland						
Coastal Plain Seasonal Pond (Swamp Tupelo - Overcup Oak Type)	<i>Nyssa biflora</i> - (<i>Quercus lyrata</i>) / <i>Eubotrys racemosa</i> / <i>Carex jorii</i> Forest	G1G2	S1S2	None	None	28	Y
Maritime Loblolly Pine Forest	<i>Pinus taeda</i> - (<i>Quercus falcata</i> , <i>Prunus serotina</i>) / <i>Morella cerifera</i> / <i>Vitis rotundifolia</i> Forest	G2	S2	None	None	8	Y
Loblolly Pine / Sand Heather Dune Woodland	<i>Pinus taeda</i> / <i>Hudsonia tomentosa</i> Woodland	G1G2	S1S2	None	None	6	Y
Non-Riverine Wet Hardwood Forest	<i>Quercus (phellos, pagoda, michauxii)</i> /	G2?	S2	None	None	14	Y

Common Name/Natural Community (Northern Coastal Plain Type)	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
	<i>Ilex opaca</i> - <i>Clethra alnifolia</i> / <i>Woodwardia areolata</i> Forest						
Piedmont Acidic Oak - Hickory Forest	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Carya tomentosa</i> / <i>Cornus florida</i> / <i>Vaccinium stamineum</i> / <i>Hylodesmum nudiflorum</i> Forest	G4G5	S4S5	None	None	9	Y
Maritime Swamp Forest (Black Willow Type)	<i>Salix nigra</i> Forest	G2G3	SU	None	None	1	Y
Interdune Swale (Saltmeadow Cordgrass Brackish Type)	<i>Spartina patens</i> - (<i>Bolboschoenus robustus</i>) Herbaceous Vegetation	G2G4	S2?	None	None	4	Y
Interdune Swale (Northern Mixed Grassland Type)	<i>Spartina patens</i> - <i>Fimbristylis (castanea, caroliniana)</i> - <i>Cyperus</i>	G1G2	S1?	None	None	4	Y

<i>Common Name/Natural Community</i>	<i>Scientific Name</i>	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	<i>Statewide Occurrences</i>	<i>Virginia Coastal Zone</i>
	<i>filicinus - (Sch oenoplectus pungens) Herbaceous Vegetation</i>						
VASCULAR PLANTS							
Sea-beach amaranth	Amaranthus pumilus	G2	S1	LT	LT	4	Y
False Hop Sedge	Carex lupuliformis	G4	S1S2	None	None	11	Y
Slender sand sedge	Cyperus odoratus var. engelmannii	G4Q	S1	None	None	2	Y
Plukenet's flatsedge	Cyperus plukenetii	G5	S2	None	None	10	Y
Cream- flowered tick- trefoil	Desmodium ochroleucum	G1G2	SH	SOC	None	3	Y
Dwarf Burhead	Echinodorus tenellus	G5?	S1	None	None	7	Y
Southern seaside spurge	Euphorbia bombensis	G4G5	S2	None	None	18	Y
Coastal water- pennywort	Hydrocotyle bonariensis	G5	S2	None	None	5	Y
Big-headed rush	Juncus megacephalus	G4G5	S2	None	None	10	Y
Wild Olive	Osmanthus americanus	G5	S1	None	None	4	Y
Bog Fern	Parathelypteris simulata	G4G5	S1S2	None	None	6	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Sea-beach Knotweed	Polygonum glaucum	G3	S2	None	None	18	Y
Elliott's goldenrod	Solidago latissimifolia	G5	S2	None	None	11	Y
Twisted leaf goldenrod	Solidago tortifolia	G4G5	S1	None	None	10	Y
Spanish-moss	Tillandsia usneoides	G5	S1S2	None	None	19	Y
Southern Bladderwort	Utricularia juncea	G5	S1	None	None	11	Y

Note: On-line queries provide basic information from DCR's databases at the time of the request. They are NOT to be substituted for a project review or for on-site surveys required for environmental assessments of specific project areas.

For Additional Information on locations of Natural Heritage Resources please submit an [information request](#).

To Contribute information on locations of natural heritage resources, please fill out and submit a [rare species sighting form](#).

VaFWIS Search Report Compiled on 5/17/2016, 8:27:16 AM[Help](#)

Known or likely to occur within a **2 mile radius around point 37,21,54.0 -75,54,54.3**
in **131 Northampton County, VA**

[View Map of
Site Location](#)

533 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 44) (44 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
010032	FESE	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
040183	FESE	IV	Tern, roseate	Sterna dougallii dougallii		BOVA,HU6
030073	FESE		Turtle, hawksbill sea	Eretmochelys imbricata		BOVA
030074	FESE		Turtle, Kemp's ridley sea	Lepidochelys kempii		BOVA,HU6
030075	FESE		Turtle, leatherback sea	Dermochelys coriacea		BOVA
030071	FTST	I	Turtle, loggerhead sea	Caretta caretta		BOVA,HU6
040120	FTST	I	Plover, piping	Charadrius melodus		BOVA,HU6
100361	FTST	II	Beetle, northeastern beach tiger	Cicindela dorsalis dorsalis		BOVA,HU6
040144	FTST	IV	Knot, red	Calidris canutus rufa		BOVA,HU6
030072	FTST		Turtle, green sea	Chelonia mydas		BOVA,HU6
050022	FTST		Bat, northern long-eared	Myotis septentrionalis		BOVA
040118	SE	I	Plover, Wilson's	Charadrius wilsonia		BOVA,HU6
040110	SE	I	Rail, black	Laterallus jamaicensis		BOVA,HU6
050020	SE		Bat, little brown	Myotis lucifugus lucifugus		BOVA
050027	SE		Bat, tri-colored	Perimyotis subflavus		BOVA

040096	ST	I	Falcon, peregrine	Falco peregrinus		BOVA,HU6
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
040385	ST	I	Sparrow, Bachman's	Peucaea aestivalis		BOVA
040379	ST	I	Sparrow, Henslow's	Ammodramus henslowii		HU6
040179	ST	I	Tern, gull-billed	Sterna nilotica	Potential	BOVA,Habitat,HU6
040403	ST		Falcon, Arctic peregrine	Falco peregrinus tundrius		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
040093	FS	II	Eagle, bald	Haliaeetus leucocephalus	Yes	BOVA,BAEANests,HU6
100001	FS	IV	fritillary, Diana	Speyeria diana		BOVA
030067	CC	II	Terrapin, northern diamond-backed	Malaclemys terrapin terrapin	Potential	BOVA,Habitat,HU6
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA,HU6
040129		I	Sandpiper, upland	Bartramia longicauda		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Setophaga virens		BOVA
040306		I	Warbler, golden-winged	Vermivora chrysoptera		BOVA
040038		II	Bittern, American	Botaurus lentiginosus		BOVA
040052		II	Duck, American black	Anas rubripes		BOVA,HU6
040029		II	Heron, little blue	Egretta caerulea caerulea	Potential	BOVA,Habitat,BBA,HU6
040036		II	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040213		II	Owl, northern saw-whet	Aegolius acadicus		BOVA,HU6
040114		II	Oystercatcher, American	Haematopus palliatus	Potential	BOVA,Habitat,BBA,HU6
040105		II	Rail, king	Rallus elegans		BOVA
040192		II	Skimmer, black	Rynchops niger	Potential	BOVA,BBA,HU6

040381		II	Sparrow, saltmarsh	Ammodramus caudacutus		BOVA
040186		II	Tern, least	Sterna antillarum	Potential	BOVA,Habitat,BBA,HU6
040187		II	Tern, royal	Sterna maxima maximus		BOVA,HU6
040320		II	Warbler, cerulean	Setophaga cerulea		BOVA,HU6
040266		II	Wren, winter	Troglodytes troglodytes		BOVA
050062		II	Squirrel, Delmarva Peninsula fox	Sciurus niger cinereus		BOVA

To view **All 533 species** [View 533](#)

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need;
 II=VA Wildlife Action Plan - Tier II - Very High Conservation Need;
 III=VA Wildlife Action Plan - Tier III - High Conservation Need;
 IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

[View Map of All Query Results from All Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams

N/A

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
170	MEARS DAM	TR-MATTAWOMAN CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (4 records)
[View Map of All Query Results
Bald Eagle Nests](#)

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
NT1101	2	Apr 23 2011	RECENTLY ACTIVE	Yes
NT9401	5	May 4 1995	HISTORIC	Yes
NT9402	4	May 4 1995	HISTORIC	Yes
NT9601	25	Apr 27 2010	HISTORIC	Yes

Displayed 4 Bald Eagle Nests

Species Observations (7 records)
[View Map of All Query Results
Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
604208	SppObs	Jun 16 2008	Nathan; Nazdrowicz	1		III	Yes
366599	SppObs	Jan 1 1900		1		IV	Yes
604447	SppObs	Apr 4 2009	Nathan ; Nazdrowicz Jim; White	4			Yes
60503	SppObs	May 17 1987	TRUITT, B	1			Yes
334864	SppObs	Jan 1 1975	NMB-BURKHEAD	1			Yes
332588	SppObs	Jan 1 1958	BBC (MISC 1)	2			Yes
17859	SppObs	Jan 1 1900		1			Yes

Displayed 7 Species Observations

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species (5 Species)

[View Map of Combined Terrestrial Habitat Predicted for 5 WAP Tier I & II Species Listed Below](#)

ordered by Status Concern for Conservation

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040179	ST	I	Tern, gull-billed	Sterna nilotica	Yes
030067	CC	II	Terrapin, northern diamond-backed	Malaclemys terrapin terrapin	Yes
040029		II	Heron, little blue	Egretta caerulea caerulea	Yes
040114		II	Oystercatcher, American	Haematopus palliatus	Yes
040186		II	Tern, least	Sterna antillarum	Yes

Virginia Breeding Bird Atlas Blocks (3 records)

[View Map of All Query Results](#)
[Virginia Breeding Bird Atlas Blocks](#)

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
63071	Cheriton, NW	1			Yes
63086	Franktown, SE	66		II	Yes
63085	Franktown, SW	41		IV	Yes

Public Holdings:

N/A

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
131	Northampton	470	FESE	I

USGS 7.5' Quadrangles:

Cheriton
Franktown

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
AO15	Great Machipongo Inlet	90	FESE	I
AO18	The Thorofare-Mockhorn Bay	81	FTST	I
CB45	Lower Chesapeake Bay-Hungars Creek	78	FTST	I
CB46	Lower Chesapeake Bay-Cherrystone Inlet	98	FESE	I

Compiled on 5/17/2016, 8:27:16 AM I730915.0 report=all searchType= R dist= 3218.688 poi= 37,21,54.0 -75,54,54.3

PixelSize=64; Anadromous=0.014917; BBA=0.044303; BECAR=0.011825; Bats=0.010749; Buffer=0.100535; County=0.087188; HU6=0.08559; Impediments=0.036916; Init=0.150754; PublicLands=0.021908; Quad=0.047958; SppObs=0.152432; TEWaters=0.013801; TierReaches=0.01707; TierTerrestrial=0.075597; Total=1.002571; Tracking_BOVA=0.155546; Trout=0.015246; huva=0.04187

Legend

- Approximate Site Boundary
- 2 Mile Radius
- NLEB_Roost_Trees
- NLEB_Roost_Trees_LowRes
- Hibernacula_05
- Hibernacula_55
- SppObs_Enviro_Review_Listed
- SppObs_Tiered_Non_Listed
- SppObs_Not_Observed



Notes

Data Source:
Virginia Department of Game and Inland Fisheries -
Wildlife Environmental Review Map Service (WERMS),
updated 4/15/2016



Project No.	XXXXXXX
Drawn By:	MDP
Approved By:	JWB
Date:	5/23/2016

Terracon
Consulting Engineers & Scientists

2855 Premier Parkway, Suite C Duluth, GA 30097
PH: (770) 623-0755 FAX: (770) 623-9628

WERMS Radius Map

Hecate Energy
Cherrydale
Cape Charles, Northampton County, Virginia

Exhibit

X

Bald eagle Nest NT0201

37,21,54.0 -75,54,54.3
is the Search Point

Display at center	Item Location is not at map center
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Show Position Rings

☒ Yes ☐ No

1 mile and 1/4 mile at the
Search Point

Show Search Area

☒ Yes ☐ No

3 Search distance miles
radius

Search Point is at
map center


Base Map [Choices](#)

Color Aerial Photography ▼

Map Overlay [Choices](#)

Current List: Position, Search,
Observation

Map Overlay Legend

-  **Position Rings**
1 mile and 1/4
mile at the
Search Point
-  **3 mile radius**
Search Area
-  **Bald Eagle nests**
660 and 330 foot
management zones
-  **Data**
Observation Site

[back](#)

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Point of Search 37,21,54.0 -75,54,54.3

Map Location 37,21,54.0 -75,54,54.3

Select **Coordinate System**: ☒ Degrees, Minutes, Seconds Latitude - Longitude

☐ Decimal Degrees Latitude - Longitude

☐ Meters UTM NAD83 East North Zone

☐ Meters UTM NAD27 East North Zone

Base Map source: Color Aerial Photography 2002 - Virginia Base Mapping Program, Virginia Geographic Information Network

Map projection is UTM Zone 18 NAD 1983 with left 414171 and top 4140557. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents



CCB Mapping Portal



Layers: VA Eagle Nest Locator, Eagle Roost Polygons, Eagle Roost Buffers, Eagle Roosts, VA Eagle Nest Buffers

Map Center [longitude, latitude]: [-75.9358263015747, 37.364188370600864]

Map Link:

http://www.ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&layer=Eagle+Roost+Polygons&layer=Eagle+Roost+Buffers&layer=Eagle+Roosts&layer=VA+Eagle+Nest+Buffers&zoom=14&lat=37.364188370600864&lng=-75.9358263015747&legend=legend_tab_59557df6-c07b-11e5-a85-0e31c9be1b51&base=Aerial+Imagery+%28MapQuest%29

Report Generated On: 03/22/2016

The Center for Conservation Biology (CCB) provides certain data online as a free service to the public and the regulatory sector. CCB encourages the use of its data sets in wildlife conservation and management applications. These data are protected by intellectual property laws. All users are reminded to view the [Data Use Agreement](#) to ensure compliance with our data use policies. For additional data access questions, view our [Data Distribution Policy](#), or contact our Data Manager, Marie Pitts, at mlpitts@wm.edu or 757-221-7503.

Report generated by [The Center for Conservation Biology Mapping Portal](#).

To learn more about CCB visit ccbbirds.org or contact us at info@ccbbirds.org



Photo 1: Overview of the site.



Photo 2: Overview of the site.



Photo 3: View of the pond on the south central portion of the site.



Photo 4: View of upland grassy swale on the central portion of the site.

Terracon Project No.: 49157617B

Project Name: Cherrydale

Date Photos Taken: 8/10/2015



Photo 5: View of the west end of the site.



Photo 6: View of the central portion of the site.



Photo 7: View of wooded area on the southwest end of the site.



Photo 8: View of wooded area on the northeast end of the site.

Terracon Project No.: 49157617B

Project Name: Cherrydale

Date Photos Taken: 8/10/2015



Photo 9: View of scarlet oak with peeling bark.



Photo 10: View of white oak with peeling bark.



Photo 11: View of white oak with peeling bark.



Photo 12: View of mixed hardwoods with slight opening that may provide flight corridor.

Kosmalski, Emily

From: Baxter, Jim W.
Sent: Thursday, May 05, 2016 11:04 AM
To: Kosmalski, Emily
Subject: FW: Cherrydale Site

[FWS concurrence on Cherrydale.](#)

From: mary_morrison@fws.gov [mailto:mary_morrison@fws.gov] **On Behalf Of** Virginia Field Office, FW5
Sent: Thursday, May 5, 2016 10:31 AM
To: Baxter, Jim W. <Jim.Baxter@terracon.com>
Subject: Re: Cherrydale Site

Good morning Jim,

We have reviewed the project package received on May 3, 2016 for the referenced project. The following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended, and Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended.

We concur with the determinations provided in the Species Conclusion Table dated April 10, 2016 and have no further comments. Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact me.

Best,

Mary Anne

On Tue, May 3, 2016 at 9:55 AM, Baxter, Jim W. <Jim.Baxter@terracon.com> wrote:

Updated consultation package attached. Mary Ann had comments that have been incorporated.

Thanks!

Jim W. Baxter

Senior Ecologist | Environmental Division

Terracon

2105 Newpoint Place, Suite 600 | Lawrenceville, GA 30043

D{770} 623-4131 | M {404} 550-8277 | O {770} 623-0755 | F {770} 623 9628

Jim.Baxter@terracon.com | terracon.com

Terracon provides environmental, facilities, geotechnical, and materials consulting engineering services delivered with responsiveness, resourcefulness, and reliability.

Private and confidential as detailed here (www.terracon.com/disclaimer). If you cannot access hyperlink, please e-mail sender.



April 11, 2016

Mr. Roger Kirchen
Director, Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Ave.
Richmond, Virginia 23221

**Re: REVISED REPORT
Cultural Resources Reconnaissance Survey of Approximately 185 Acres
at the Proposed Cherrydale Solar Project
Northampton County, Virginia
Terracon Project No. 73157513
VDHR File No. 2016-0044**

Dear Roger:

On behalf of Hecate Energy, LLC, Terracon Consultants, Inc. (Terracon), is pleased to submit two copies of the above-referenced report for review. This revised report addresses the comments contained in your letter to me dated March 1, 2016. The cultural resource investigations were done as part of the Department of Environmental Quality's Permit by Rule (DEQ-PBR) process. DEQ has been sent a copy of the report for their review.

We appreciate your assistance with this project. If you have any questions or need additional information, please don't hesitate to call me at 803-403-1256 or you can reach me via e-mail at wggreen@terracon.com. Thank you.

Sincerely,
Terracon Consultants, Inc.

William Green, M.A., RPA
Senior Project Manager

cc: Mary E. Major, DEQ
Andrew Boggs, Hecate Energy, LLC
Emily Kosmalski, Terracon



Terracon Consultants, Inc. 521 Clemson Road Columbia, South Carolina 29229
P [803] 741 9000 F [803] 741-9900 terracon.com

Geotechnical



Environmental



Construction Materials



Facilities

Cultural Resource Reconnaissance Survey

Cherrydale Solar Project
Northampton County, Virginia

Terracon Project No. 73157513

April 2016



Prepared for:

Hecate Energy, LLC
Nashville, Tennessee

Prepared by:

Terracon Consultants, Inc.
Columbia, South Carolina

Offices Nationwide
Employee-Owned

Established in 1965
terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

April 11, 2016

Mr. Andrew Boggs
Hecate Energy, LLC
115 Rosa Parks Boulevard
Nashville, Tennessee 37203

**Re: REVISED REPORT
Cultural Resources Reconnaissance Survey of Approximately
185 Acres at the Proposed Cherrydale Solar Project
Northampton County, Virginia
Terracon Project No. 73157513**

Dear Mr. Boggs:

Terracon Consultants, Inc. (Terracon), on behalf of Hecate Energy, LLC (Hecate), has completed a Cultural Resources Reconnaissance Survey of approximately 185 acres at the proposed Cherrydale Solar Project located south of Cherrydale Drive in Eastville, Virginia (Figures 1 and 2). The purpose of the survey was to identify and evaluate archaeological and historic resources within the Area of Potential Effects (APE) that could be eligible for inclusion in the National Register of Historic Places (NRHP). This work was done under contract to Hecate in general accordance with Terracon Proposal No. P49150379, dated June 17, 2015, and the terms and conditions of the Consulting Services Agreement between Terracon and Hecate dated November 21, 2014. The project was conducted for the purpose of environmental due diligence and is not intended for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101 et seq.).

1.0 PROJECT DESCRIPTION

The project area is located in the Eastern Shore of Virginia near the southern end of the Delmarva Peninsula. The property is roughly rectangular in shape and is bounded by Cherrydale Drive to the north, Indian Village Road to the south, Seaside Road (County Road 600) to the east, and a private property boundary to the west (Figures 1 and 2). Located in the southeastern portion of the property is a farm house, mobile home, barn, and several outbuildings (discussed below), and there is a transmission line that runs roughly north-south through the center of the property. The area surrounding the project tract consists primarily of residential and agricultural properties, although several commercial properties are also located to the west. Based on topography, existing vegetation, and the nature of the undertaking, the proposed APE for direct effects is considered to be the project footprint, whereas for indirect effects it is considered to be areas within viewshed of the project.



2.0 ENVIRONMENTAL CONTEXT

The project area is located in the Eastern Shore of Virginia, within the Lowland portion of the Coastal Plain physiographic province. The Coastal Plain region is the only one in Virginia that is composed mostly of unconsolidated sediments, with alternating layers of sand, gravel, shell rock, silt, and clay. The closest natural water source to the project area is a small, intermittent tributary of Indiantown Creek that flows north-south through the center of the tract (Figure 1). The tributary has been impounded in recent years and there is now a small pond on the property (Figure 3). Indiantown Creek, located roughly 0.5 mile south of the property, flows into Ramshorn Bay approximately 1.0 to the southeast.

Topography in the project area is nearly level, with elevations at about 35 ft above mean sea level (AMSL). The western portion of the property contains a cornfield (Figure 4), while the eastern portion of the property contains a recently harvested potato field (Figure 5). There are also two small wooded areas in the northeast and southwest corners of the property (Figure 6).

Soils in the project area were formed primarily in sandy and loamy marine sediments. These consist of well drained Bojac loamy sand and sandy loam, and moderately well drained Munden sandy loam (Figure 7).

3.0 BACKGROUND RESEARCH

Background research was conducted on June 24, 2015, using the online Virginia Cultural Resource Information System (V-CRIS) available through the Virginia Department of Historic Resources (VDHR). The records examined using V-CRIS included previously recorded archaeological and historic resources in Virginia. The area examined was a 0.5-mile radius around the project area.

Table 1. Previously Recorded Cultural Resources within a 0.5-mile Radius of the Project Area.

Resource ID	Description	NRHP Eligibility	Reference
44NH241	19 th century tenant house site	Not Evaluated	V-CRIS
44NH242	19 th century house site	Not Evaluated	V-CRIS
44NH243	19 th century house site	Not Evaluated	V-CRIS
065-0420	Elizabeth Burrows House, early 20 th century house and cemetery	Not Evaluated	V-CRIS

Based on the results of the background research, there are three previously recorded archaeological sites and one historic resource within a 0.5-mile radius of the project area (Figure 1, Table 1). The three archaeological sites — 44NH241, 44NH242, and 44NH243 — are all nineteenth century house sites. The historic resource, known as the Elizabeth Burrows House (065-0420), is an early twentieth century house and cemetery. None of these resources is within the project area and none have been evaluated for inclusion in the National Register of Historic Places (NRHP).

3.1 Historic Research

In addition to checking V-CRIS, eighteenth through twentieth century maps were examined to determine whether any historic resources were likely to be present in the proposed project area (Figures 8 through 10). During the eighteenth century the proposed project area was located in a rural setting. The 1778 Map of Northampton County shows the site as undeveloped. A 1932 highway map of Virginia shows the current rail line to the northwest border of the proposed project and the establishment of the Kendall Grove community in the area. Twentieth century topographic maps show scattered residential development in the area including three houses on the south side of Cherrydale Drive within the project area. These three houses were determined to be no longer extant.

3.2 Predictive Model Research

For the Southeastern and Mid-Atlantic U.S., various predictive models have been used to identify areas having a high likelihood for containing archaeological sites (e.g., Benson 2006; Brooks and Scurry 1978; Cable 1996; Florida Division of Historical Resources 2002; Georgia Council of Professional Archaeologists (2014); O'Donoghue 2008a, 2008b; Scurry 2003). In general, the most significant variables for determining site location appear to be distance to a permanent water source or wetland, slope, and soil drainage characteristics. Prehistoric sites tend to occur on low slope areas with well drained soils that are within 300 meters of a permanent water source or wetland, or near areas containing high quality lithic resources. Historic home sites tend to be located on well drained soils near old roads. Low probability areas are those that contain poorly drained soils or have slopes in excess of 15 percent (VDHR 2011:51). Based on these parameters, the entire project area had a moderate potential for containing prehistoric archaeological sites due to the presence of well-drained soils and gentle slope, but lack of a nearby permanent water source. The project area had a high potential for containing twentieth century archaeological sites due to the proximity of several roads as well as evidence from the map research that indicated three twentieth homes were located on the property.

4.0 RESULTS OF FIELDWORK

4.1 Archaeological Survey

On August 6, 2015, Principal Investigator William Green, M.A., RPA, conducted a reconnaissance level survey of the project area. The archaeological survey consisted of excavating shovel test pits (STPs) at 30- and 60-meter intervals along four transects (Figure 7, Table 2). Each shovel test was approximately 40 cm in diameter and excavated to culturally sterile subsoil. Pedestrian survey was conducted along all dirt roads, in the potato fields, which had about 90 percent surface visibility, and in portions of the cornfield, which had approximately 40–70 percent surface visibility. Although three twentieth century house site are presumed to be in the project area based on

historic map research, no attempt was made to identify these sites as they are unlikely to be considered significant resources (i.e., historic properties).

During the survey, 37 shovel tests, ranging from 25–60 cm deep, were excavated. Soil profiles in the agricultural fields were relatively consistent, with approximately 22 cm of dark yellowish brown (10YR 3/4) sandy loam (Ap horizon), overlying 18+ cm (22–40 cmbs [centimeters below surface]) reddish yellow (7.5YR 6/6) sandy clay loam subsoil (Bt horizon). In the woods, soil profiles tended to consist of approximately 8 cm of dark yellowish brown (10YR 3/4) sandy loam (A/O horizon), followed by 32 cm (8–40 cmbs) of yellowish brown (10YR 5/6) loamy fine sand (A horizon), overlying 10+ cm (40–50+ cmbs) of strong brown sandy clay loam subsoil (Bt horizon). As a result of the survey, no archaeological sites or isolated finds were recorded.

Table 2. Shovel Test Transects and Results.

Transect	STPs	Interval	Bearing	Area	Results
Transect 1	12	60-m	Varied	Potato field along east side of drainage	No sites or isolated finds
Transect 2	11	60-m	0°	Potato field in east half of project area	No sites or isolated finds
Transect 3	8	30-m	180°	Wooded area in NE corner	No sites or isolated finds
Transect 4	6	60-m	190°	Cornfield on west side of drainage	No sites or isolated finds

4.2 Architectural Survey

In addition to the archaeological survey, an architectural survey was conducted to locate and record buildings, structures, and objects 50 years of age or older within the Area of Potential Effects (APE) (Figure 11). Terracon consulted the guidelines published by the VDHR to establish the APE for the project's indirect effects. The APE was determined to be the project site and properties within the viewshed of the proposed project. The areas with potential viewshed impacts were determined to be along Cherrydale Drive from Seaside Road (eastern boundary) to Lankford Highway (western boundary) and along Seaside Road just north of Cherrydale Drive (northern boundary) to the bend in Seaside Road at the southern portion of the project parcel (southern boundary).

Eleven properties, all single family dwellings, were recorded within the proposed APE including one previously recorded property (065-0420). None of the properties were determined to be eligible for the NRHP. The houses ranged from 18th thru mid-20th century based on tax assessor data and historic map research. Many of the 18th century properties had substantial material alterations and lacked defining architectural style and therefore had no definitive observable construction period.

On the project parcel a circa 1870 house and multiple historic outbuildings including a smokehouse, shed, and three corn cribs were recorded (065-5036). These structures will not be directly impacted by the project. The house is a two-and-half-story I-house with a front cross gable and a two-story rear gable ell. The house sits on a continuous brick foundation and features a hipped roof front porch with Tuscan columns and 6/6 single hung wood frame windows.

Alterations include asbestos siding, a shed roof addition on the gable ell, vinyl enclosures on the ends of the front porch and an apparent conversion to a multi-tenant dwelling. While the property is a reflection of late 19th century vernacular architecture it has undergone material changes and does not exhibit architectural distinction. The property does not appear to be associated with a significant event or persons. Therefore, it is Terracon's opinion that this property does not appear to be eligible for the NRHP.

Table 3. Summary of Structures in the APE

Figure #	Resource ID	Address	Date of Construction (Tax Assessor)	Brief Description of Current Condition	Eligibility Assessment
12-17	065-5036	15446 Seaside Road	1870	I-house with two-story rear gable ell, asbestos siding, partially enclosed hipped roof porch, 6/6 double hung windows. Historic outbuildings include shed, smokehouse and three corn cribs.	Not Eligible
18	065-0420	6259 Cherrydale Drive	1916	Early 20 th century house and cemetery. Two-story vernacular house on brick pier foundation with vinyl siding, vinyl windows, replacement porch balustrade and asphalt roof.	Not Eligible
19	065-5037	6305 Cherrydale Drive	1754	Two-story side-hall vernacular house on continuous brick foundation with vinyl siding, 1/1 vinyl windows, and one story rear gable addition	Not Eligible
20	065-5038	6321 Cherrydale Drive	N/A	C. 1950 one-story side gable house with vinyl siding, vinyl windows, enclosed portico, cinderblock pier foundation, and poured concrete stoop.	Not Eligible
21	065-5039	6355 Cherrydale Drive	1960	One-story hipped roof house with asymmetrical façade, brick chimney, and weatherboard siding. Deteriorating condition with windows covered in plywood and falling and missing siding.	Not Eligible
22	065-5040	6385 Cherrydale Drive	1947	Mid-20 th century side gable house with metal frame windows, vinyl siding, and asphalt roof.	Not Eligible
23	065-5041	15189 Seaside Road	N/A	19 th century house with Colonial Revival elements with asymmetrical façade, vinyl siding vinyl windows, fixed shutters, portico, and gable additions on each side.	Not Eligible
24	065-5042	15268 Seaside Road	1900	Turn-of-the -century Queen Anne house with 2/2 windows, brick chimney, and concrete block foundation.	Not Eligible
25	065-5043	15336 Seaside Road	1754	Two-story gabled-ell house with replacement siding, vinyl windows, asphalt roof, and rear shed addition. No observable construction period due to alterations.	Not Eligible
26	065-5044	7232 Indian Village Road	1925	Two story side-hall house with vinyl siding, vinyl windows, fixed shutters, asphalt roof, and large rear addition. No observable construction period due to alterations.	Not Eligible
27	065-5045	16085 Seaside Road	1942	Two-story side gabled house with vinyl siding, vinyl windows, fixed shutters, asphalt roof, and hipped roof front porch.	Not Eligible

4.3 Cemetery

On December 29, 2015, subsequent to the cultural resources investigation for the project, Hecate brought to the attention of Terracon a cemetery that was located on the property that had not been found during the reconnaissance survey. The cemetery is mentioned in a deed dated December 21, 1906, that transferred the land from William and Mary Waddey to Hezekiah and Ira James. The deed states “it is expressly agreed and understood ... that the grave-yard forty feet by forty feet (40ft. / 40ft.) on said premises ... does not pass with this deed, the same being reserved in a certain deed from one William James’ executor to the said William E. Waddey, Sr., dated First day of December, A.D., 1857, and of record in the clerk’s office of said county.” There are a number of headstones that are still apparent in the cemetery and its approximate location is shown on Figure 11. As proposed the cemetery is not in area that will be directly impacted by the project.

5.0 SUMMARY AND RECOMMENDATIONS

No archaeological sites were found during the reconnaissance survey of the 185-acre project area. Shovel testing and pedestrian survey in various portions of the tract indicated that the entire project area has a low potential for containing prehistoric archaeological resources, primarily due to the lack of a nearby permanent water source. Based on historic map research the project area was not developed prior to the twentieth century and there is no evidence for any earlier historic occupations, other than the nineteenth century cemetery. For these reasons, it is the opinion of Terracon that the project area is unlikely to contain any significant prehistoric or historic archaeological sites and that no additional archaeological investigations are warranted for the project tract.

The architectural survey recorded eleven historic properties within the potential viewshed for the project. One property (065-5036) a c.1870 I-house and historic outbuildings were identified on the parcel for the project. The project as proposed will not directly impact these structures. Due to material alterations and lack of architectural distinction none of the resources were determined to be eligible for the NRHP. Therefore, no additional architectural survey investigations are warranted for the project.

6.0 CLOSING

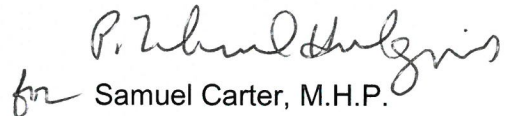
Terracon appreciates the opportunity to provide you with this report. If you have any questions,

please do not hesitate to contact Bill Green at (803) 403-1256 or Sam Carter at (770) 623-3046.

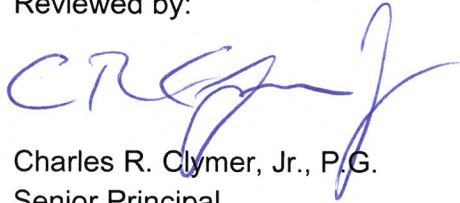
Sincerely,
Terracon Consultants, Inc.



William Green, M.A., RPA
Senior Archaeologist/Principal Investigator


for Samuel Carter, M.H.P.
Architectural Historian

Reviewed by:



Charles R. Clymer, Jr., P.G.
Senior Principal

REFERENCES

Benson, Robert W.

2006 *Cultural Resources Overview of the Sumter National Forest*. Francis Marion and Sumter National Forests, CRM Report 06-07. Prepared for Francis Marion and Sumter National Forests, USDA Forest Service, Columbia, South Carolina, by Southeastern Archaeological Services, Inc., Athens, Georgia.

Brooks, Mark J. and James D. Scurry

1978 *An Intensive Archaeological Survey of Amoco Realty Property in Berkeley County, South Carolina, with a Test of Two Subsistence-Settlement Hypotheses for the Prehistoric Period*. Research Manuscript Series 147. South Carolina Institute of Archaeology and Anthropology, Columbia.

Cable, John

1996 *A Study of Archaeological Predictive Modeling in the Charleston Harbor Watershed, South Carolina*. Report prepared for the Office of Ocean and Coastal Resource Management, Charleston, by New South Associates, Irmo, South Carolina.

Clement, Christopher Ohm, Sahadeb De, and Robin Wilson Kloot

2001 Using GIS to Model and Predict Likely Archaeological Sites. Accessed on July 21, 2006, <http://gis.esri.com/library/userconf/proc01/professional/papers/pap651/p651.htm>.

O'Donoghue, Jason

2008a *Living in the Low Country: Modeling Archaeological Site Location in the Francis Marion National Forest, South Carolina*. M.A. Thesis, Department of Anthropology, University of Tennessee, Knoxville.

2008b *Living in the Low Country: Modeling Archaeological Site Location in the Francis Marion National Forest, South Carolina*. Paper presented at the Southeastern Archaeological Conference, Charlotte, North Carolina.

Virginia Department of Historic Resources [VDHR]

2011 *Guidelines for Conducting Historic Resources Survey in Virginia*. Virginia Department of Historic Resources, Richmond.

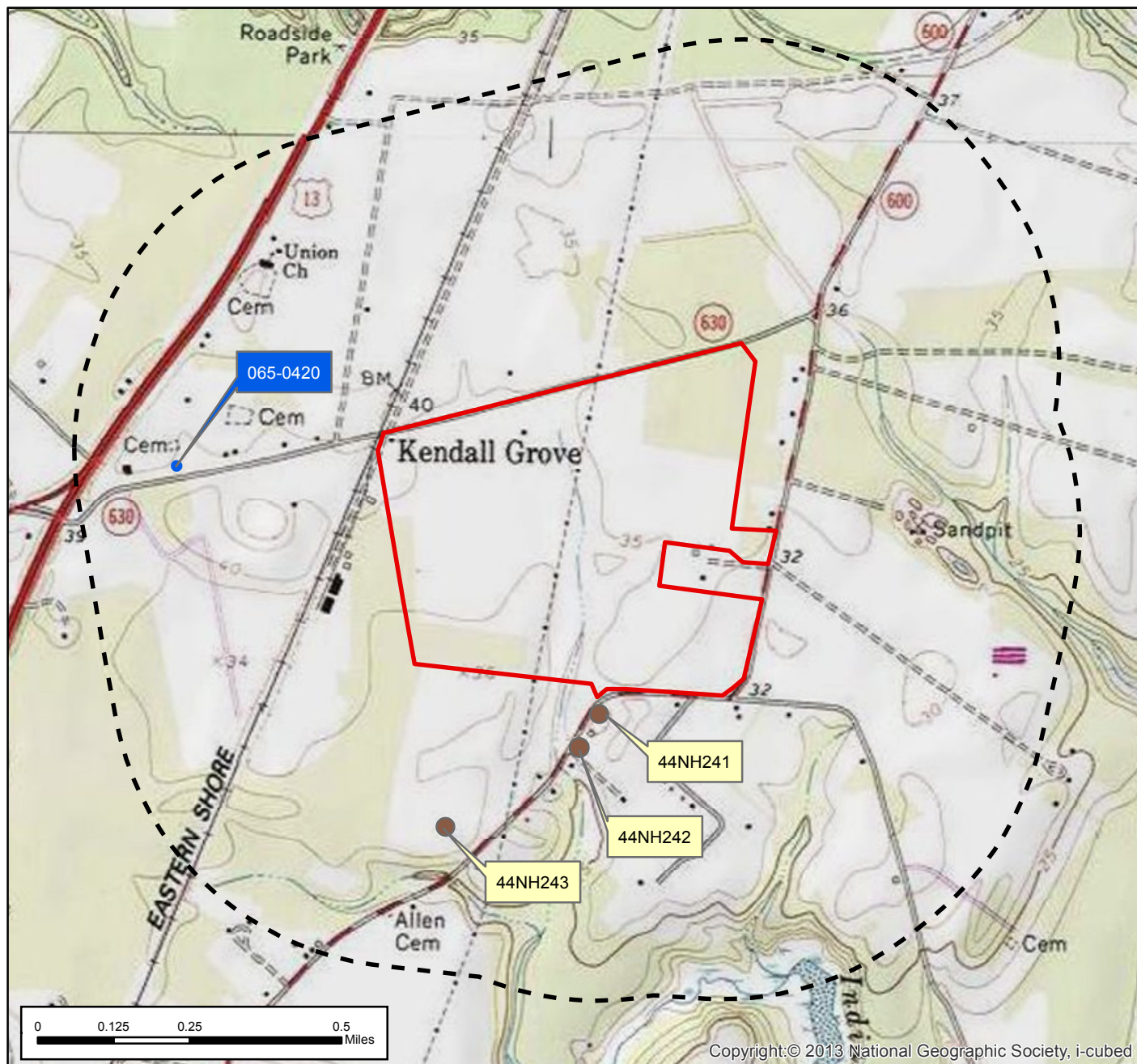
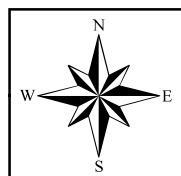
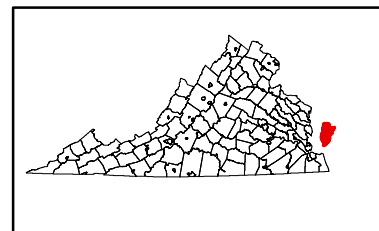
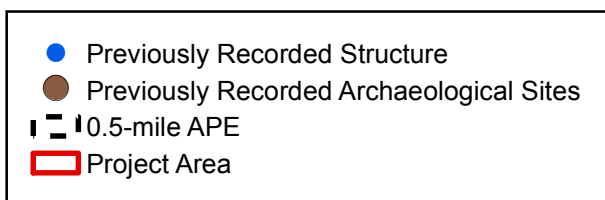


Figure 1. Project area and previously recorded cultural resources within a 0.5-mile radius.
Base Map: Cheriton (1982) 7.5' USGS topographic quadrangle.



Project No.	73157513
Date:	October 2015
Drawn By:	BGG
Reviewed By:	BGG

Terracon

521 Clemson Rd. Columbia, SC
PH. (803) 741-9000 terracon.com

USGS TOPOGRAPHIC MAP

CHERRYDALE SOLAR
NORTHAMPTON COUNTY, VA

Figure

1

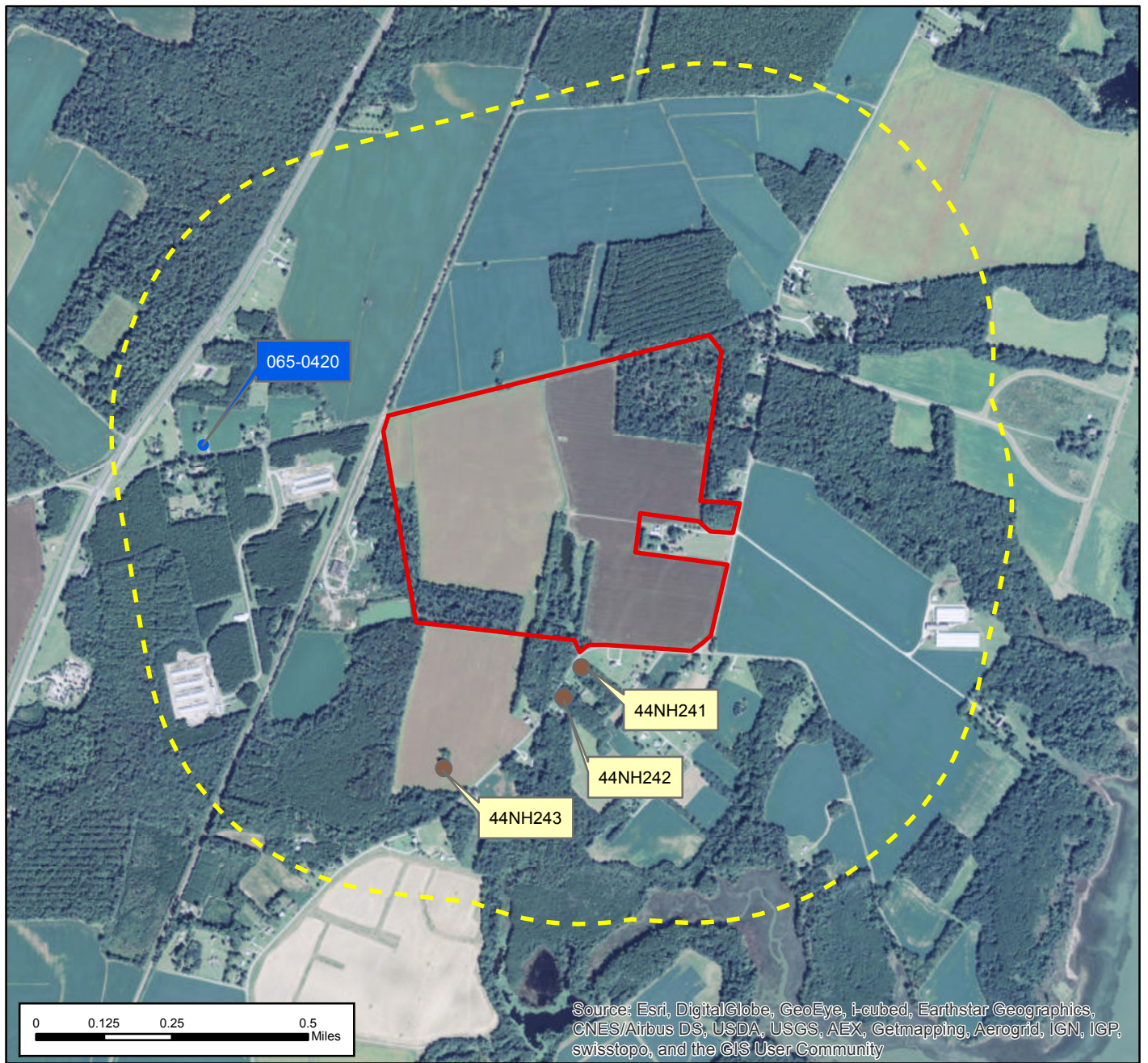
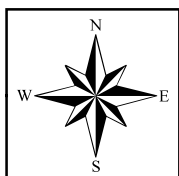
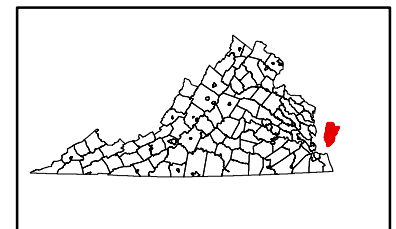
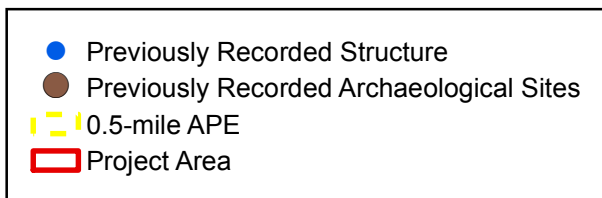


Figure 2. Aerial image of the project area and vicinity.
Base Map: ESRI World Imagery.



Project No.	73157513
Date:	October 2015
Drawn By:	BGG
Reviewed By:	BGG

Terracon	
521 Clemson Rd.	Columbia, SC
PH. (803) 741-9000	terracon.com

AERIAL IMAGERY
CHERRYDALE SOLAR
NORTHAMPTON COUNTY, VA

Figure
2



Figure 3. Pond, facing south.



Figure 4. Cornfield, facing northwest.



Figure 5. Potato field, facing northeast.



Figure 6. Wooded area in northeast portion of the property, facing south.

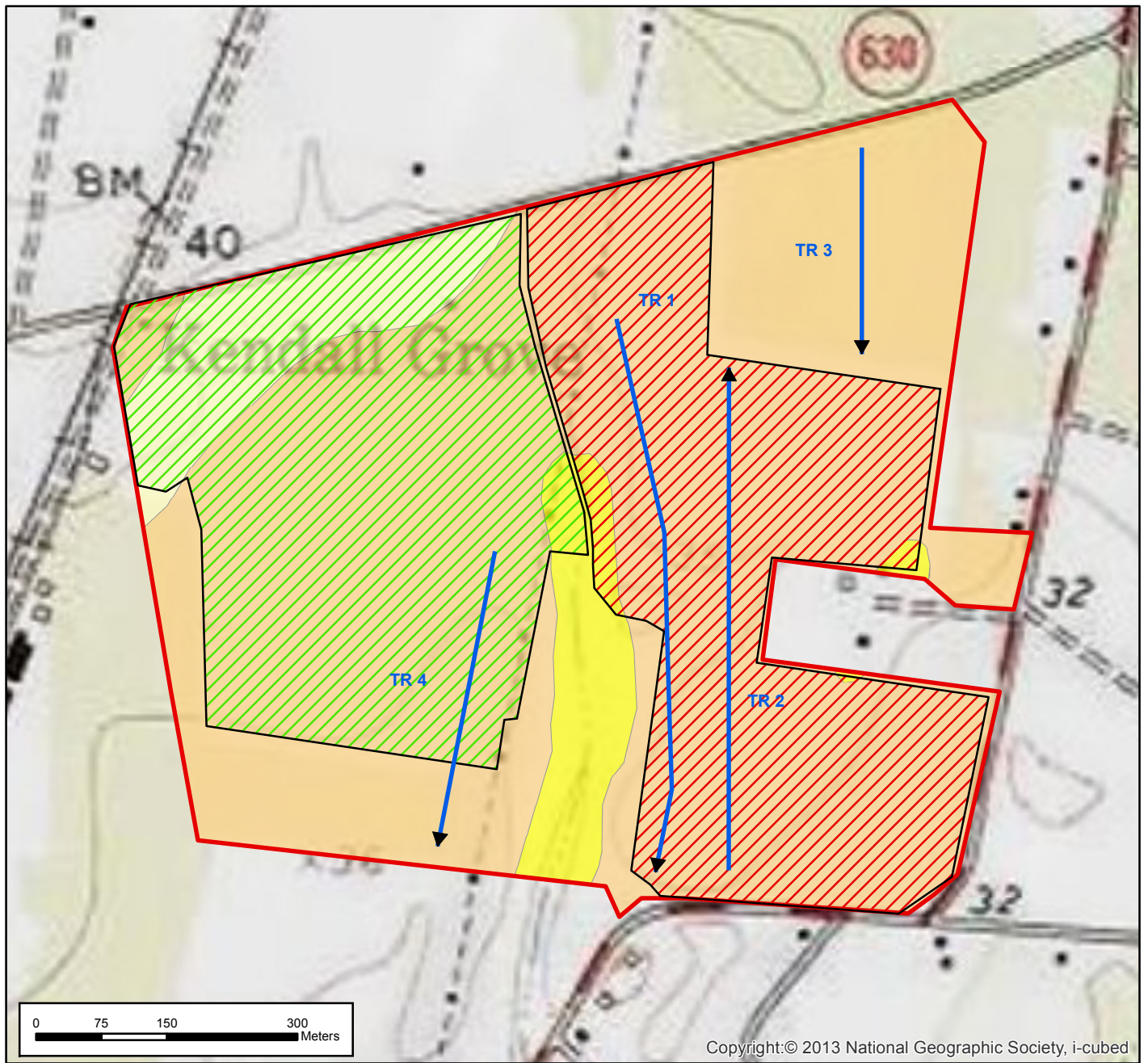
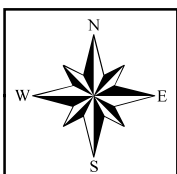
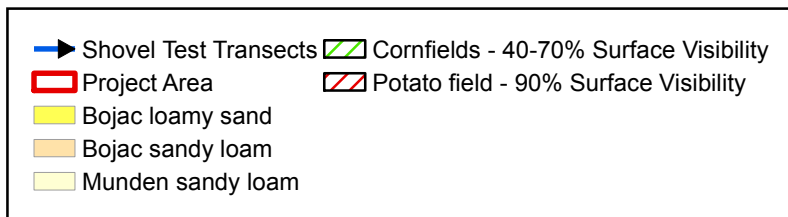
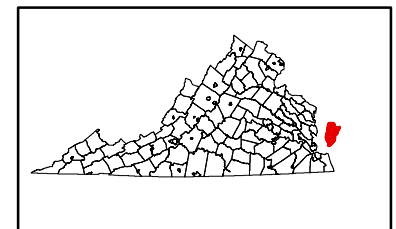


Figure 7. Soil types and shovel test transects in the project area.
Base Map: Cheriton (1982) 7.5' USGS topographic quadrangle.
Soil data obtained from NRCS Web Soil Survey.



Project No.	73157513
Date:	October 2015
Drawn By:	BGG
Reviewed By:	BGG

Terracon

521 Clemson Rd. Columbia, SC
PH. (803) 741-9000 terracon.com

SOIL TYPES AND TRANSECTS
CHERRYDALE SOLAR NORTHAMPTON COUNTY, VA

Figure
7



Figure 8. 1778 map of Northampton County showing the approximate location of the project area in red.

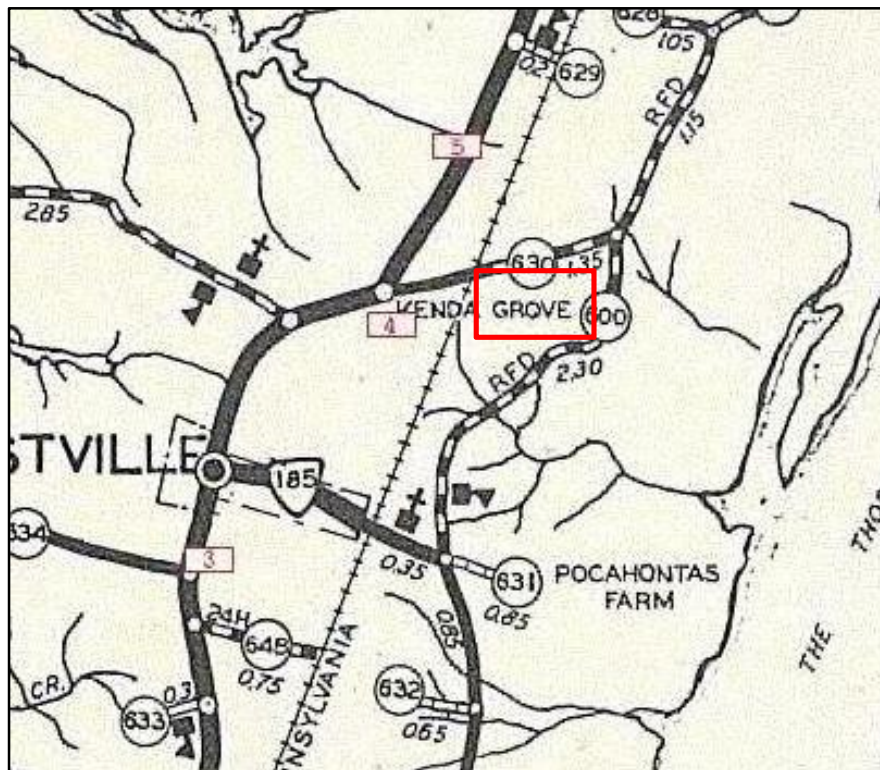


Figure 9. 1932 map of Virginia showing the approximate project area in red.

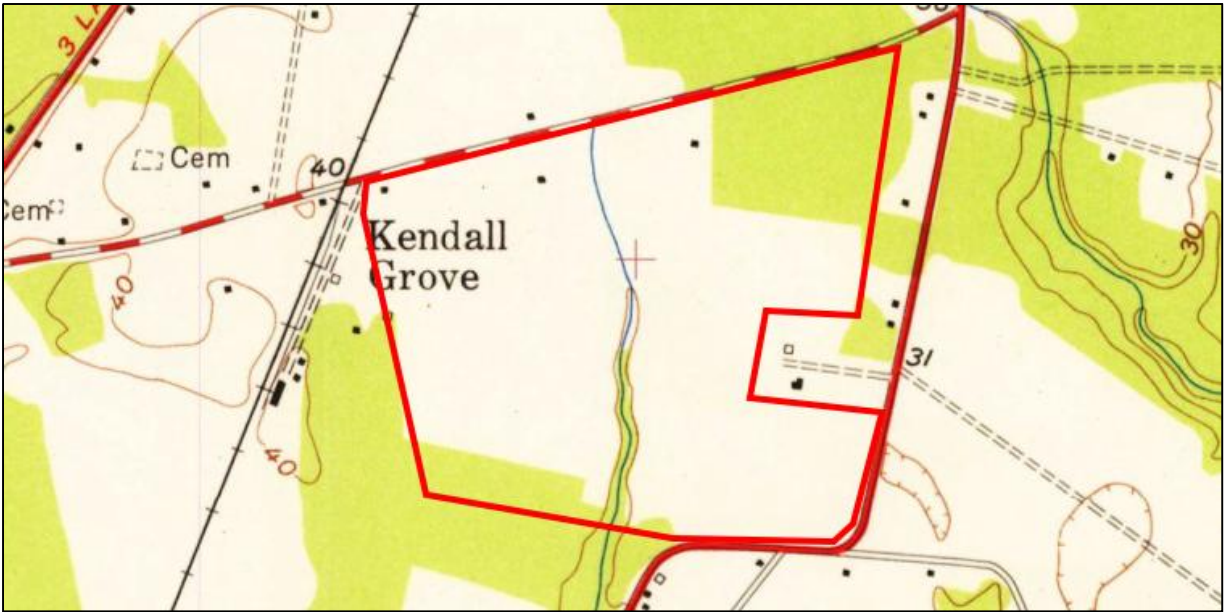


Figure 10. 1955 USGS topographic map showing the approximate project area in red.

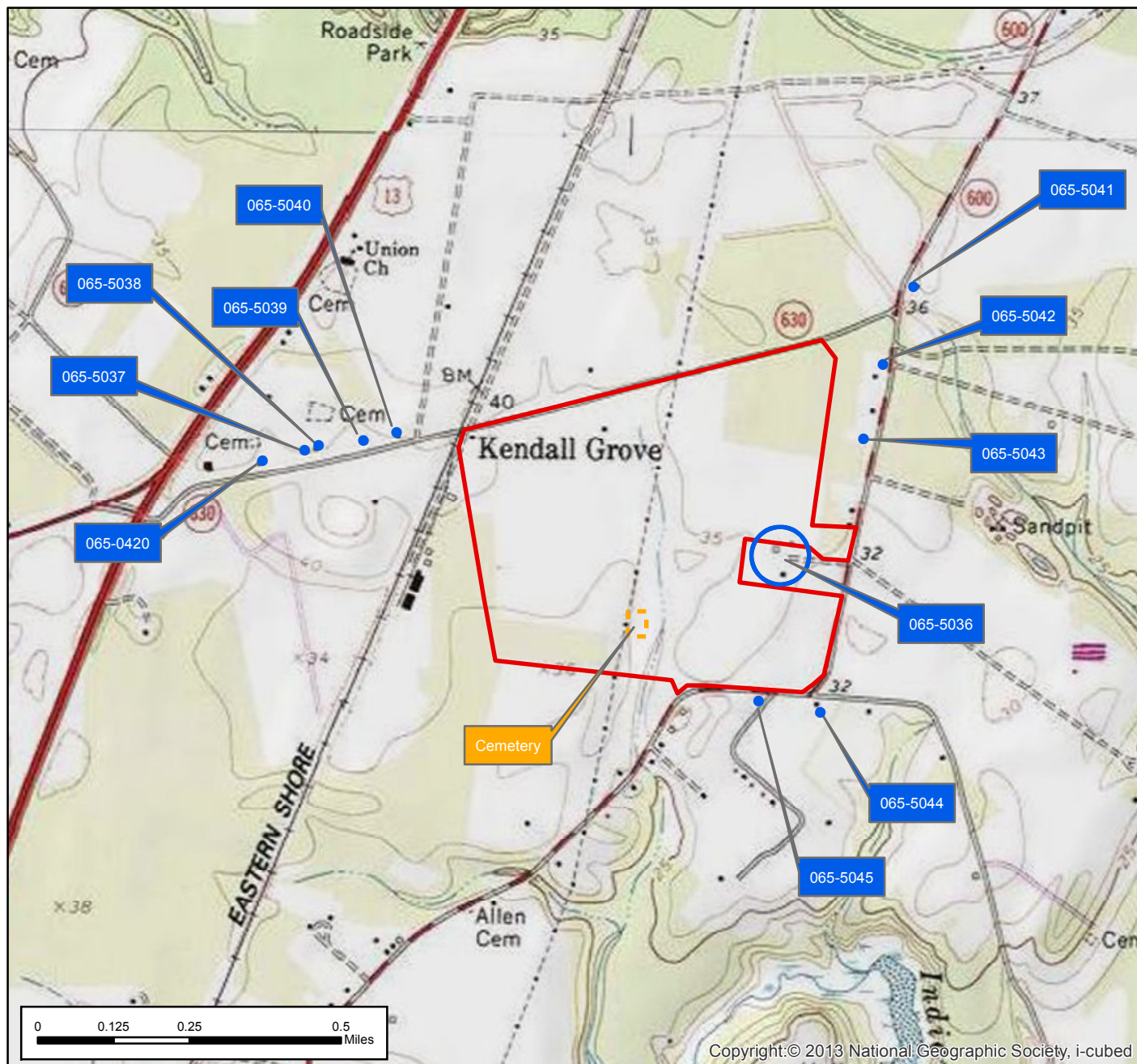
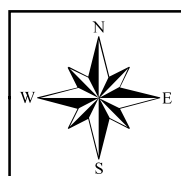
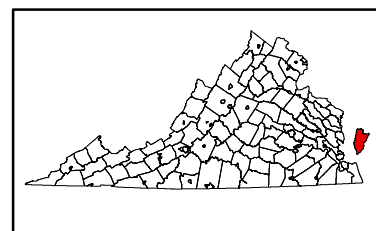
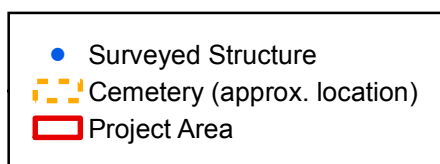


Figure 11. Surveyed structures and cemetery.
Base Map: Cheriton (1982) 7.5' USGS topographic quadrangle.



Project No.	73157513
Date:	April 2016
Drawn By:	BGG
Reviewed By:	BGG

Terracon

521 Clemson Rd. Columbia, SC
PH. (803) 741-9000 terracon.com

SURVEYED STRUCTURES
CHERRYDALE SOLAR
NORTHAMPTON COUNTY, VA

Figure
11



Figure 12. View of front façade of main house at 065-5036 facing west.



Figure 13. View of rear of main house at 065-5036 facing east.



Figure 14. View of southern elevation of main house at 065-5036.



Figure 15. View of northern elevation of main house at 065-5036.



Figure 16. View of shed and smokehouse buildings at 065-5036.



Figure 17. View of corn cribs and storage barn at 065-5036.



Figure 18. View of 065-420 with house and cemetery in rear, facing north from Cherrydale Drive.



Figure 19. View of 065-5037 facing northwest from Cherrydale Drive.



Figure 20. View of 065-5038 facing northwest from Cherrydale Drive.



Figure 21. View of 065-5039 facing north from Cherrydale Drive.



Figure 22. View of 065-5040 facing north from Cherrydale Drive.



Figure 23. View of 065-5041 facing southeast from Seaside Road.



Figure 24. View of 065-5042 facing west from Seaside Road.



Figure 25. View of 065-5043 facing west from Seaside Road.



Figure 26. View of 065-5044 facing southwest from Indian Village Road.



Figure 27. View of 065-5045 facing south from Seaside Road.

8. Mitigation Plan

Not Applicable – see discussion in application text

9. Certification of Design Incorporating Mitigation Plan

**Not Applicable – see discussion in
application text**

10. Operation Plan Incorporating Mitigation Plan

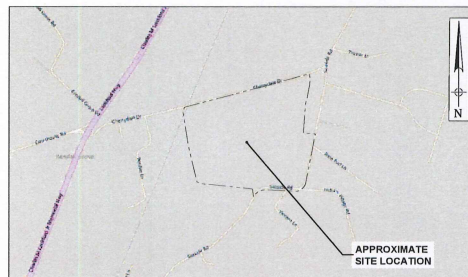
Not Applicable – see discussion in application text

11. Site Plan & Context Map

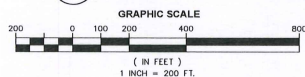


KEY MAP

SCALE: 1"=±1500'



1 CONCEPTUAL PLAN
CP-1 SCALE: 1:200



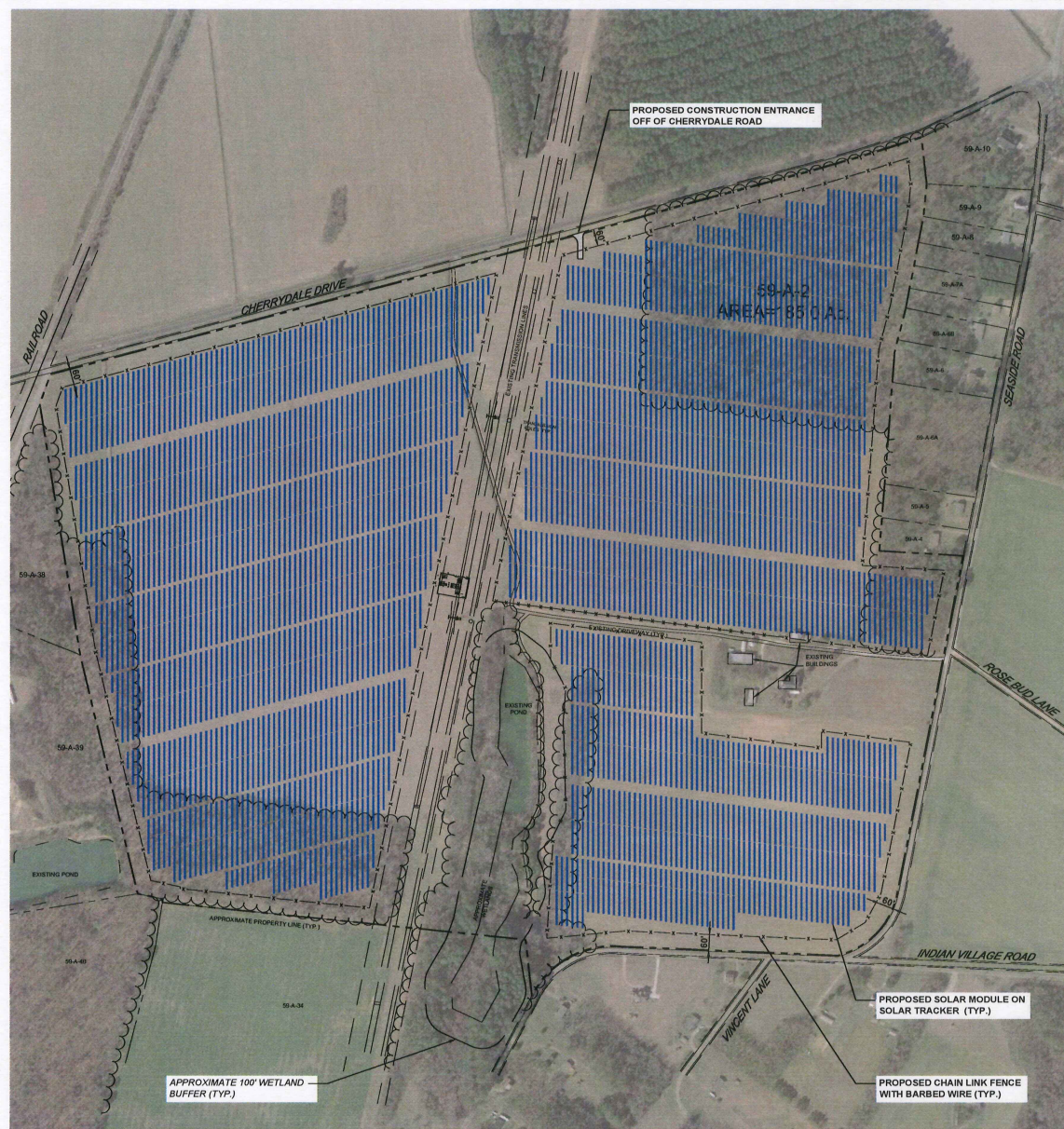
NOTES:

1. THIS CONCEPTUAL LAYOUT IS BASED SOLELY ON AERIAL PHOTOGRAPHS AND PROVIDED PLANS. NO SITE VISITS WERE CONDUCTED THEREFORE SHADE IMPACT IS APPROXIMATE ONLY.
2. NO VERIFICATION OF SOIL CAPACITY WAS CONDUCTED. A FULL GEOTECHNICAL ANALYSIS IS SUGGESTED.
3. VEGETATED BUFFER SHALL BE A MINIMUM OF 50 FEET WIDE AND CONSIST OF PLANT MATERIAL THAT ARE MATURE ENOUGH TO EFFECTIVELY SCREEN THE VIEW, TO 8 FEET ABOVE GROUND LEVEL, OF THE SOLAR PANELS FROM ADJACENT PROPERTIES ALL YEAR ROUND.
4. LAYOUT SHOWN IS NOT FINAL. MODULES MAY BE PLACED AS CLOSE TO CHAIN-LINK FENCE AS POSSIBLE.

NOT FOR CONSTRUCTION

PV SYSTEM SPECIFICATIONS

MODULE	72-CELL MODULE
RACKING	SOLAR TRACKER

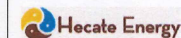


7 PLEASANT HILL ROAD
CHERRYDALE, VA 23031
TEL: (703) 990-3858
FAX: (703) 990-9496

SEAL:

DRAWING NOTES:

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HECATE ENERGY
115 ROSA PARKS BOULEVARD
NASHVILLE, TN 37203
hecateenergy.com

NO.	DATE	REVISION DESCRIPTION
0	08/09/18	PRELIMINARY SUBMISSION
1	11/01/18	REVISED LAYOUT AND SINGLE LINE
2	12/01/18	REVISED LAYOUT AND SINGLE LINE
3	05/06/19	REVISED LAYOUT
4	05/06/19	CONSTRUCTION ENTRANCE ADDED
5	05/06/19	100' WETLAND BUFFER ADDED

PROJECT:

20 MW (AC)
GROUND MOUNTED
PHOTOVOLTAIC SYSTEM

HECATE ENERGY
CHERRYDALE
CAPE CHARLES, VA 23310
NORTHAMPTON COUNTY

SCALE	AS SHOWN	PROJECT NO.	05-10-117
PLOT DATE	12/1/18	CLIENT	HECATE
DRAWN BY	P.E.	REVIEWED BY	J.T.

DRAWING TITLE:

CONCEPTUAL PLAN

DRAWING NO.:

CP-1

SHEET NO.:

1 OF 1

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Legend

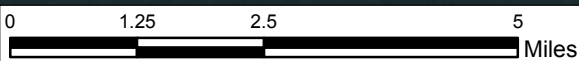
- 5 Mile Radius
- Approximate Site Boundary
- Power Easement
- Coastal Avian Protection Zones
- ColonialWaterBirds

Public/Private Lands in Protective Management

- Local Park
- State Owned Tidal Lands
- TNC Land Holding
- TNC Preserve

Conservation Easements

- CBF Easement
- DU Easement
- ESSWCD Easement
- TNC Easement
- VESLT Easement
- VOF



Notes

Data Source:
Virginia Department of Game and Inland Fisheries -
Wildlife Environmental Review Map Service (WERMS),
updated 4/15/2016; Virginia Department of Conservation
and Recreation

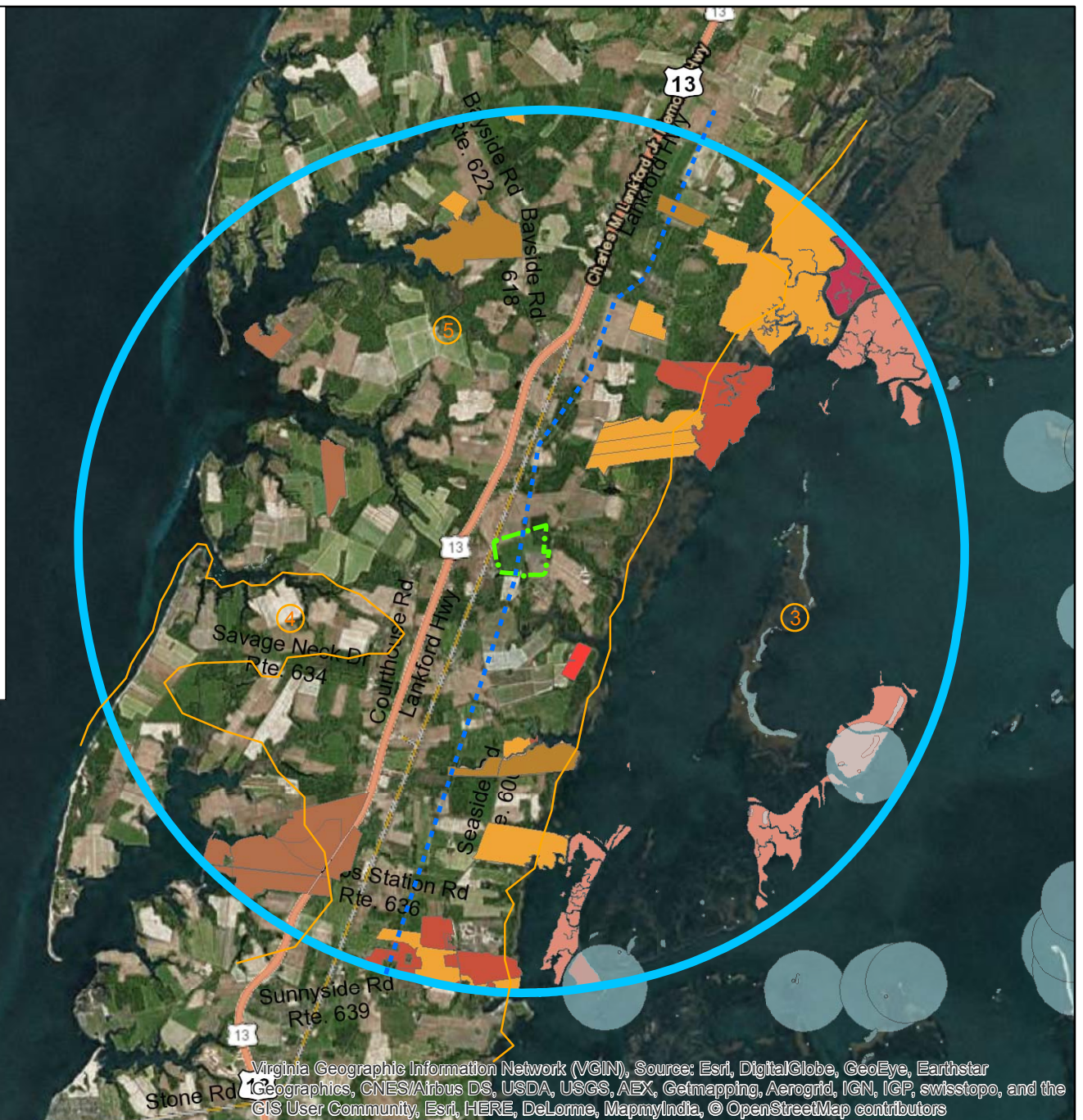


Project No.	49157617D
Drawn By:	MDP
Approved By:	JWB
Date:	5/25/2016

2855 Premier Parkway, Suite C	Duluth, GA 30097
PH: (770) 623-0755	FAX: (770) 623-9628

WERMS Radius Map
Hecate Energy Cherrydale Cape Charles, Northampton County, Virginia

Exhibit
X

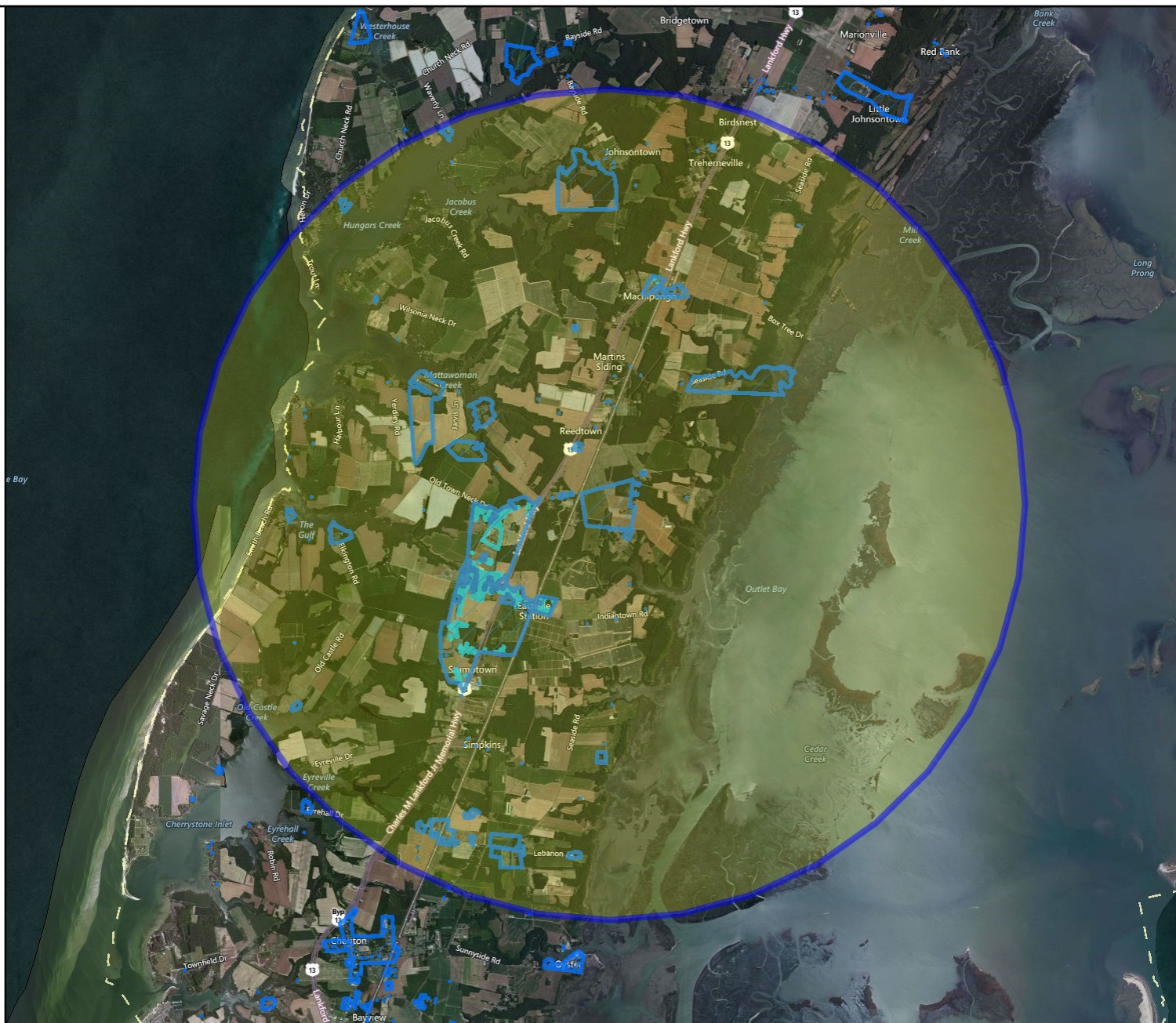


Virginia Geographic Information Network (VGIN), Source: Esri, DigitalGlobe, GeoEye, Earthstar
Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the
GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



Legend

- Architecture Resources
- Individual Historic District Properties
- County Boundaries



Miles

0 .5 1 1.5 2
1:144,448 / 1"=2 Miles

Title: Cherydale Historic 5-mile Buffer

Date: 5/23/2016

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

12. Certification of Application for Environmental Permits

**Virginia Department of Environmental Quality
Small Renewable Energy Projects (Solar)
Environmental Permit Certification Form**

Facility Name and Location: Proposed 20 MW Solar Power Generation Facility
Northampton County, Virginia

Applicant's Name & Title: Hecate Energy, LLC
Preston Schultz and Patti Shorr

Applicant's Mailing Address:
Patti Shorr, Hecate Energy LLC,
612 Park Street, Suite 200,
Columbus, Ohio 43215

Telephone Number and Email Address:
614-205-3798
PShorr@HecateEnergy.com

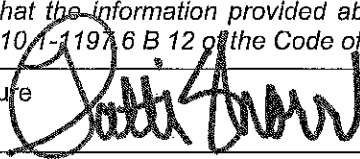
The applicant is submitting an application for a small renewable energy permit by rule from the Virginia DEQ. In accordance with § 10.1-1197.6 B 12 of the Code of Virginia, before such permit application can be considered complete, the applicant must certify that the small renewable energy project has applied for or obtained all necessary environmental permits.

List all state and local environmental permits that are necessary for the small renewable energy project listed above. Indicate for each whether the permit has been applied for and/or obtained. If the permit has been obtained, attach either a copy of the permit or a letter from the appropriate agency staff member on agency stationery stating that the permit has been issued and the date of issuance. If a permit has not yet been obtained but has been applied for, provide the name of the permit, name and address of the receiving agency, name of the staff person at the receiving agency to whom the application was addressed (if available), and the date on which the application was submitted. If no permits are necessary, write the word "none" in the first column.

Permit	Permitting Agency / Authority, Address, Contact Person	Applied for (Date)	Obtained (Date)
Special Use Permit (SUP)	Northampton County Planning Commission	1/27/2016	3/8/2016 voted for approval
VA DEQ Permit By Rule	VA DEQ	Notice of Intent: 10/12/2015	
VA DEQ Regional Office Permits (as applicable)	Contacted DEQ Tidewater Regional Office to discuss Project- No additional DEQ permits apply		

I hereby certify that the information provided above (and any attached information) is correct and fulfills the requirements of § 10.1-1197.6 B 12 of the Code of Virginia and 9 VAC 15-40-30 A 12.

Applicant's Signature



Date:
24 May 2016

13. Public Review

EASTERN SHORE NEWS

Classified Ad Receipt (For Info Only - NOT A BILL)

Customer: HECATE ENERGY CHERRYDALE LLC

Ad No.: 0001300623

Address: 612 PARK STREET
COLUMBUS OH 43215
USA

Pymt Method Credit Card

Net Amt: \$750.88

Run Times: 2

No. of Affidavits: 0

Run Dates: 05/25/16, 06/01/16

Text of Ad:

**NOTICE OF PUBLIC COMMENT PERIOD AND
PUBLIC MEETING**

Application for Small Renewable Energy Project (Solar)
Permit By Rule
by Hecate Energy Cherrydale LLC

A solar renewable energy project is proposed to be located in central Northampton County, Virginia - east of Highway 13, and just west of Seaside Road, approximately 2 miles northeast of the Town of Eastville. The project has received a Special Use Permit by the Northampton County Board of Supervisors following a positive recommendation by the Northampton County Planning Commission. The proposed project is now proceeding through the Virginia Permit by Rule Process.

The project will have a maximum capacity of 20 Megawatts alternating current (AC). The project will utilize traditional photovoltaic (PV) solar modules installed on single axis trackers that rotate slowly throughout the day to track the sun. The 20 MW project is proposed to be installed across roughly 185 acres.

The facility will utilize approximately 79,800, 310-watt polycrystalline PV modules. The dimension of each PV module is approximately 77" x 39.05," so approximately 38.3 acres will be covered in PV modules which will be included in the approximately 164 acres of total installed area. The PV modules will be mounted in rows on a single-axis tracker oriented in a north-south direction. Each tracker array will stand approximately 4 feet above grade with the maximum height of the panels being 6.8 feet above grade when the arrays are tilted at 60-degrees.

We are proud of the project design and welcome the

opportunity to discuss the project with interested parties.

This particular public participation is offered for the following purposes: (i) to acquaint the public with the technical aspects of the proposed project and how the standards and the requirements of chapter 9VAC15-60, "Small Renewable Energy Projects (Solar) Permit By Rule" will be met, (ii) to identify any issues of concern, (iii) to facilitate communication, and (iv) to establish a dialogue between Hecate Energy Cherrydale LLC (the project owner) and persons who may be affected by the project.

A 30-day comment period, in accordance with 9VAC15-60-90 will be held commencing June 10, 2016 through July 10, 2016. Any interested parties may contact the applicant to ask questions or provide comments as follows:

Hecate Energy Cherrydale LLC
Attn: Patti Shorr
115 Rosa Parks Blvd.
Nashville, TN 37203
Info.Cherrydale@HecateEnergy.com

A public meeting will be held in accordance with 9VAC15-60-90 on June 29, 2016 from 2:00 pm to 4:00 pm at Northampton High School located at 16041 Courthouse Rd, Cape Charles, VA 23310.

Copies of the documentation to be submitted to the VA Department of Environmental Quality in accordance with the Commonwealth of Virginia Permit By Rule application will be available for inspection at the Northampton County Planning Department, 16404 Courthouse Rd, Cape Charles, VA 23310, during normal business hours, commencing June 10, 2016, ending July 10, 2016.

5/25, 6/1'16

0001 300623-01

14. Permit Fee